

Volume 5 | Map books

CFA₁₃ | Calvert, Steeple Claydon, Twyford and Chetwode Ecology

November 2013 ES 3.5.1.5.13



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Printed in Great Britain on paper containing at least 75% recycled fibre.

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Map series name	Map series description				
EC-01 — Designated Sites	This map series shows statutory and non-statutory sites for nature conservation located in the vicinity of the land required for the construction of the Proposed Scheme. They also show the location of Nature Reserves of the RSPB and Wildlife Trusts, and ancient woodland.				
EC-02 — Phase 1 Habitat (1:10,000)	This map series shows Phase 1 habitat survey information for land required and in the vicinity of the Proposed Scheme at a scale of 1:10,000. Where it has not been possible to gain access for field survey, the information is based on available desk study and interpretation of aerial photography.				
EC-03 - Phase 1 Habitat (1:2,500)	This map series shows Phase 1 habitat survey information for land required and in the vicinity of the construction of the Proposed Scheme at a scale of 1:2,500. Where it has not been possible to gain access for field survey the information is based on available desk study and interpretation of aerial photography. This map series is only provided at those locations where a larger scale is required.				
EC-04 – Amphibians	This map series shows the results of amphibian surveys conducted to inform the Environmental Assessment. It principally details the results of great crested newt surveys conducted. In addition it shows the location of those 'exceptional' populations of common amphibians recorded.				
EC-o ₅ – Bats – Roost	This map series shows results of field surveys conducted to investigate the potential for trees and buildings/structures to support roosting bats. It shows the location of roosts confirmed by field survey and features identified as having a high or moderate potential to support roosting bats.				
EC-o6 – Bats – Activity	This map series shows the location of bat activity surveys conducted to inform the Environmental Statement. In addition it shows the location of the key bat foraging and commuting routes which have been established on the basis of the survey work conducted.				
EC-07 – Reptiles	This map series shows the extent and results of survey work for common reptiles that has been undertaken to inform the Environmental Statement.				
EC-o8 – Breeding Birds – Protected and Notable Species	This map series shows records of protected/notable breeding birds that are considered most relevant in considering the impacts of the Proposed Scheme on breeding birds. The location of nest sites for species such as barn owl and raptor species which may be liable to persecution are not displayed.				
EC-09 – Wintering and Passage Birds – Protected and Notable Species	This map series shows records of selected protected/notable wintering birds that are considered most relevant in considering the impacts of the Proposed Scheme.				
EC-10 — Phase 2 Habitat Survey	This map series shows the extent of detailed habitat surveys undertaken to inform the Environmental Statement. The map shows the location of hedgerows that qualify as 'important hedgerows' under the wildlife and landscape criteria of the Hedgerows Regulations (1997).				
EC-11 — Other Protected and Notable Species (1)	This map series shows the extent of protected species surveys conducted to inform the Environmental Statement.				
EC-12 — Other Protected and Notable Species (2)	This map series shows the extent of protected species surveys conducted to inform the Environmental Statement.				

Mapping explanatory notes

Copyright statements

Copyright statements are presented in the data dictionary and definitions section at the front of the map book, due to limited space to include this on the individual maps themselves.

Ordnance Survey data

All maps produced as part of the London-West Midlands Environmental Statement (ES) contain Ordnance Survey (OS) data. HS2 Ltd uses the most up-to-date mapping available, where possible, supplied by the OS. As such, we cannot be held responsible for any inaccuracies within this data.

As part of our licence conditions, all digital maps carry a watermark.

Chainage

Most of the maps presented as part of the ES have a chainage value shown next to the alignment. Chainage is presented on the maps in black font, in the form of XX+YYY, for example: 77+000.

Chainage (known as reference chainage) is referenced from Euston station, which is 0+000, and the value presented is in metres. For example, 77+000 refers to the point 77,000m, or 77km, from Euston station. Chainage values increase in intervals dependant on the map scale. For maps at 1:50,000, scale chainage is shown at 1:25,000, scale chainage is shown at 1:25,000, scale chainage is shown at 1km intervals. For maps at 1:10,000, 1:5,000 and 1:2,500 scales, chainage is shown at 1km intervals.

Chainage has been included on the maps as a useful tool for comparing map sets showing the different environmental themes or engineering plans, due to map sets having different scales and therefore showing differing amounts of alignment on the map.

Map orientation

The majority of the maps presented in these map books are presented with the railway alignment running horizontally across the page. The direction of travel to London would be following the alignment to the right hand side of the page, and the West Midlands to the left.

The exceptions to this are map series LV-02, LV-03, LV-04, LV-07 and LV-08, which present the alignment running from the bottom to the top of the page. This is to allow more of the modelled outputs to be shown at the appropriate map scale. In this instance, the direction of travel to London would be to the bottom of the page, and the West Midlands to the top.

Map books

There are a total of 76 map books in the ES, spread across Volumes 2, 4 and 5. A list of the titles is provided in the table below for reference.

Name	Name
Volume 2 Map Books Community Forum Area: 01 Euston — Station and Approach	Volume 5 Map Books: Ecology – Community Forum Area: 05 Northolt Corridor
Volume 2 Map Book s Community Forum Area: 02 Camden Town and HS1 Link	Volume 5 Map Books: Ecology – Community Forum Area: o6 South Ruislip to Ickenham
Volume 2 Map Books Community Forum Area: 03 Primrose Hill to Kilburn (Camden)	Volume 5 Map Books: Ecology – Community Forum Area: 07 Colne Valley
Volume 2 Map Books Community Forum Area: 04 Kilburn (Brent) to Old Oak Common	Volume 5 Map Books: Ecology – Community Forum Area: o8 The Chalfonts and Amersham
Volume 2 Map Books Community Forum Area: 05 Northolt Corridor	Volume 5 Map Books: Ecology – Community Forum Area: 09 Central Chilterns
Volume 2 Map Books Community Forum Area: o6 South Ruislip to Ickenham	Volume 5 Map Books: Ecology – Community Forum Area: 10 Dunsmore, Wendover and Halton
Volume 2 Map Books Community Forum Area: 07 Colne Valley	Volume 5 Map Books: Ecology — Community Forum Area: 11 Stoke Mandeville and Aylesbury
Volume 2 Map Books Community Forum Area: o8 The Chalfonts and Amersham	Volume 5 Map Books: Ecology — Community Forum Area: 12 Waddesdon and Quainton
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Volume 2 Map Books Community Forum Area: 25 Castle Bromwich and Bromford	Volume 5 Map Books: Landscape and Visual – Country South
Volume 2 Map Books Community Forum Area: 26 Washwood Heath to Curzon Street	Volume 5 Map Books: Landscape and Visual – Country North
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Volume 5 Map Books: Agriculture, Forestry and Soils	Volume 5 Map Books: Socio-Economic
Volume 5 Map Books: Air Quality	Volume 5 Map Books: Sound, Noise and Vibration – Euston and London Metropolitan
Volume 5 Map Books: Community	Volume 5 Map Books: Sound, Noise and Vibration – Country South
Volume 5 Map Books: Cultural Heritage – Euston and London Metropolitan	Volume 5 Map Books: Sound, Noise and Vibration – Country North
Volume 5 Map Books: Cultural Heritage – Country South	Volume 5 Map Books: Sound, Noise and Vibration – West Midlands Metropolitan
Volume 5 Map Books: Cultural Heritage – Country North	Volume 5 Map Books: Traffic and Transport
Volume 5 Map Books: Cultural Heritage – West Midlands Metropolitan	Volume 5 Map Books: Water Resources – Euston and London Metropolitan
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Data dictionary and definitions

Data dictionary and definitions

Legend features	Definition	Source	Copyright
250m radius from all water bodies where presence of Great Crested Newt is confirmed.	250m radius from all water bodies where presence of Great Crested Newt (GCN) is confirmed.	High Speed Two (HS2) Ltd	
50m radius from all water bodies where presence of Great Crested Newt is confirmed.	50m radius from all water bodies where presence of Great Crested Newt (GCN) is confirmed.	High Speed Two (HS2) Ltd	
500m radius from all water bodies where presence of Great Crested Newt is confirmed.	500m radius from all water bodies where presence of Great Crested Newt (GCN) is confirmed.	High Speed Two (HS2) Ltd	
Activity transect route	Transect route that was surveyed during bat activity surveys.	High Speed Two (HS2) Ltd	
Ancient Woodland	Ancient Woodland Inventory. Ancient Woodland is land that has had continuous woodland cover since at least 1600AD.	Natural England	© Natural England copyright 2013. Contains Ordnance Survey data © Crown copyright and database right 2013. All rights reserved. Ordnance Survey Licence number 100022021. http://www.naturalengland.org.uk/Images/open- government-licence-NE-OS_tcm6-30743.pdf
Aquatic invertebrate: Aquatic invertebrate survey location	Location of aquatic invertebrate survey.	High Speed Two (HS2) Ltd	
Areas isolated by significant barriers to amphibian movement	Areas isolated by significant barriers to amphibian movement.	High Speed Two (HS2) Ltd	
Assumed key area of foraging habitat	Likely areas of bat foraging habitat for local bat populations, derived from bat activity survey results.	High Speed Two (HS2) Ltd	
Assumed key commuting route	Key commuting and foraging bat routes that have been identified by an ecologist after review of available survey data and application of professional judgement.	High Speed Two (HS2) Ltd	
Bat activity static detector location	Location where bat activity static detectors were used during survey period.	High Speed Two (HS2) Ltd	
Biodiversity Alert Site (BAS)	Local wildlife sites in Staffordshire are Biodiversity Alert Sites (BAS) and Sites of Biological Importance (SBI). BAS are local wildlife sites and are of lower intrinsic quality or have suffered damage or disturbance. Nevertheless, they collectively form a significant part of Staffordshire's nature conservation resource, and, in some cases, a valuable reserve series for some of the SBI. The BAS information is reproduced from, or based upon, information supplied by Staffordshire Ecological Record (SER) and reproduced with the permission of the SER Partnership. Individual records within the data are copyright their original recorders and provided under licence via SER. - All data supplied by SER is to the best of SER's knowledge correct at the time of production. However, the precision or accuracy of SER data is usually based upon the original information supplied by the recorder and although SER strives to ensure all records are checked and validated, SER cannot be held responsible for any errors or omissions - The presence of a marked boundary within SER information does not infer any right of public access.	Staffordshire Ecological Record	Copyright © Staffordshire Ecological Record Partnership, (2013).
Biological Notification Sites (BNS)	Biological Notification Sites (BNS) preceded Local Wildlife Sites as a local non-statutory designation. They were first designated in the late 1980s and have since been revised. There are no formal citations and for	Buckinghamshire County Council, Buckinghamshire and Milton Keynes Environment Record Centre (BMERC)	Based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown

Legend features	Definition	Source	Copyright
	some sites we have no survey data.		Copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civi proceedings. Buckinghamshire County Council Licence No. 100021529, 2012. Copyright Buckinghamshire County Council.
Breeding birds - protection status: Species listed on Annex I of the Birds Directive Species listed on Schedule 1 of the Wildlife and Countryside Act Species listed on Annex I of the Birds Directive and Schedule 1 of the Wildlife and Countryside Act Species listed on Birds of Conservation Concern list relevant to assessment – See Volume 5 Appendices Other notable species relevant to assessment – see Volume 5 Appendices	Field survey records of selected protected and/or notable breeding birds that are considered most relevant in considering the impacts of the Proposed Scheme on breeding birds.	High Speed Two (HS2) Ltd	
Breeding birds - survey extent	Area where breeding birds survey was conducted.	High Speed Two (HS2) Ltd	
Community Forum boundary	The Environmental Statement has been split into 26 sections called Community Forum Areas.	High Speed Two (HS2) Ltd	© Crown Copyright and database rights 2013 Ordnance Survey Licence Number 100049190.
Confirmed bat roost – buildings: Hibernation roost Maternity roost Other roost Multiple roost types Potential to support roosting bats – buildings: High Moderate	Locations where bat roost survey has been completed within buildings. Buildings are categorised into those with potential to support bat roosts (high and medium potential) and those that have confirmed roosts. Confirmed roosts are further categorised into Hibernation, Maternity, Other or Multiple roosts.	High Speed Two (HS2) Ltd	
Confirmed bats roost – trees: Hibernation roost Maternity roost Other roost Multiple roost types Potential to support roosting bats – trees: High Moderate	Locations where bat roost survey has been completed within trees. Trees are categorised into those with potential to support bat roosts (high and medium potential) and those that have confirmed roosts. Confirmed roosts are further categorised into Hibernation, Maternity, Other or Multiple roosts.	High Speed Two (HS2) Ltd	
County boundary	County boundaries from Ordnance Survey boundary mapping.	Ordnance Survey	© Crown Copyright and database rights 2013 Ordnance Survey Licence Number 100049190.
Depot, station, headhouse or portal building	Extends to cover operational footprint of each depot and station and the footprint of each tunnel vent shaft and headhouse at surface level. Excludes any ancillary buildings associated with these structures.	High Speed Two (HS2) Ltd	
District/Borough boundary	Ordnance Survey local authority boundary mapping.	Ordnance Survey	© Crown Copyright and database rights 2013 Ordnance Survey Licence Number 100049190.
Ditch vegetation survey	Extent of Ditch vegetation surveys.	High Speed Two (HS2) Ltd	
Dormouse: Nest tube survey and/or nut search conducted and presence confirmed Nest tube survey and/or nut search conducted and no signs of dormouse identified	Extent of Dormouse survey using nest tube and/or nut search. Those areas where access was available either had confirmed presence or no signs were found.	High Speed Two (HS2) Ltd	

Legend features	Definition	Source	Copyright
Site identified as potentially suitable for dormouse but no access available			
Fish: Fish survey location	Location where fish survey was conducted.	High Speed Two (HS2) Ltd	
Great Crested Newt (GCN) survey locations	Results from Great Crested Newt pond surveys.	High Speed Two (HS2) Ltd	
'Important' hedgerow confirmed by field survey Possible 'Important' hedgerow - no access available for survey	Location of those hedgerows that have been identified as 'important hedgerows' or possible 'important hedgerows' under the wildlife and landscape criteria in the Hedgerows Regulations (2007).	High Speed Two (HS2) Ltd	
Land potentially required during construction	Boundary defining the maximum possible extent of construction works required to build HS2 as far as the current level of design allows. This only covers surface works and includes all tunnel portals, vent shafts and headhouses, but does not apply to wholly tunnelled sections or to air rights. It also encompasses associated highway, access, drainage and utility works.	High Speed Two (HS2) Ltd	
Local Nature Reserve (LNR)	A Local Nature Reserve (LNR) is a statutory designation made under Section 21 of the National Parks and Access to the Countryside Act 1949 by principal local authorities. Data supplied has the status of Declared. The boundaries are interpreted from material gathered from the local authorities and do not currently cover all LNRs. This national dataset is indicative not definitive. Definitive information can only be provided by individual local authorities and you should refer directly to their information for all purposes that require the most up to date and complete dataset.	Natural England	© Natural England copyright 2013 Contains Ordnance Survey data © Crown copyright and database right 2013. All rights reserved. Ordnance Survey Licence number 100022021. http://www.naturalengland.org.uk/Images/open- government-licence-NE-OS_tcm6-30743.pdf
		EcoRecord Warwickshire County Council Birmingham Council	Data supplied by EcoRecord, Warwickshire BRC & Birmingham © Crown copyright and database rights 2012 Ordnance Survey Licence Number 100049190.
		Greenspace Information for Greater London (GiGL)	Map derived from GiGL data 2012 (where a map shows information derived from GiGL data).
Local Wildlife Site (LWS)	Local Wildlife Sites (LWS) are identified and selected for their local nature conservation value. They protect threatened species and habitats acting as buffers, stepping stones and corridors between nationally designated wildlife sites.	Northamptonshire County Council	This data incorporates biodiversity data supplied to HS2 by Northamptonshire Biodiversity Records Centre and The Wildlife Trust for Bedfordshire, Cambridgeshire and Northamptonshire (Wildlife Trust BCN), and is copyright to Wildlife Trust BCN and/or its partners.
	They are local non-statutory nature conservation sites. They were formerly referred to as County Wildlife Sites.	Buckinghamshire County Council	This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office © Crown Copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings. Buckinghamshire County Council Licence No. 100021529,2012.
		Thames Valley Ecological Records Centre (TVERC) c/o Oxfordshire County Council	Incorporates biodiversity data supplied by Thames Valley Environmental Records Centre (TVERC). This data are copyright to TVERC and/or its partners.
		Hertfordshire County Council	

Legend features	Definition	Source	Copyright
			Incorporates biodiversity data supplied to High Speed Two (HS2) by Hertfordshire Biological Records Centre and is copyright to Hertfordshire County Council, Hertfordshire Biological Records Centre and/or its partners.
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National Nature Reserve (NNR)	A National Nature Reserve (NNR) is the land declared under the National Parks and Access to the Countryside Act 1949 or Wildlife and Countryside Act (1981) as amended.	Natural England	© Natural England copyright 2013 Contains Ordnance Survey data © Crown copyright and database right 2013. All rights reserved. Ordnance Survey Licence number 100022021. http://www.naturalengland.org.uk/Images/opengovernment-licence-NE-OS_tcm6-30743.pdf
National Vegetation Classification survey	Extent of National Vegetation Classification surveys.	High Speed Two (HS2) Ltd	
Nature reserve	Designated and non-designated nature reserves managed by local authorities, The Wildlife Trusts and private landowners. Nature reserve information is reproduced from, or based upon information supplied by Staffordshire Ecological Record (SER) and reproduced with the permission of the SER Partnership. Individual records within the data are copyright their original recorders and provided under licence via SER. - All data supplied by SER is to the best of SER's knowledge correct at the time of production. However, the precision or accuracy of SER data is usually based upon the original information supplied by the recorder and although SER strives to ensure all records are checked and validated, SER cannot be held responsible for any errors or omissions - The presence of a marked boundary within SER information does not infer any right of public access.	Ecorecord, Staffordshire Ecological Record, Royal Society for the Protection of Birds	Licensed in accordance with PSMA © Crown Copyright and database rights [2013]. Ordnance Survey Licence number 100049190. Copyright © Staffordshire Ecological Record Partnership, (2013). Data reproduced with the permission of RSPB. © Crown copyright. Ordnance Survey Licence Number 100021787 (2013).
Otter: Active otter holt Potential otter holt	Location of active otter holts and potential otter holts found during field survey.	High Speed Two (HS2) Ltd	

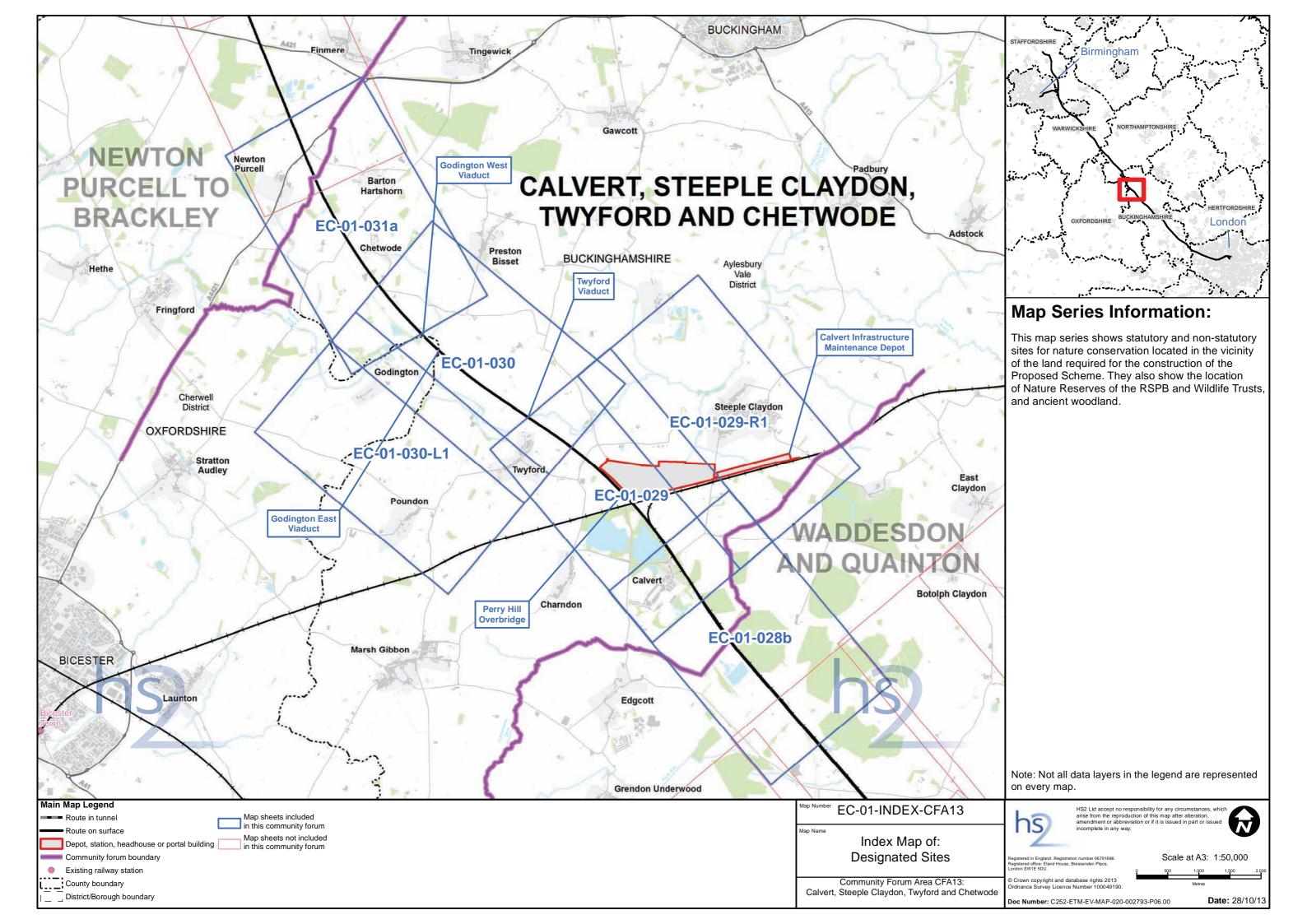
Legend features	Definition	Source	Copyright
Otter terrestrial habitat	Areas of terrestrial habitat within 100m of the Proposed Scheme that are identified as having 'high' potential to act as otter breeding sites (i.e. those ranked as having a score of 5 on the scale devised by Chanin).	High Speed Two (HS2) Ltd	
Phase 1 Habitat survey data	Results from Phase1 habitat surveys.	High Speed Two (HS2) Ltd	
Pond survey: Pond survey – national pond survey Pond survey – PSYM Pond survey – rapid assessment method	Location and type of pond surveys conducted.	High Speed Two (HS2) Ltd	
Reptiles - Population	Areas where a reptile survey was completed. Survey varies from population size class assessment, presence/absence survey or scoping visit only where it was then scoped out or it was identified as requiring further survey.	High Speed Two (HS2) Ltd	
Reptiles - Extent of areas subject to reptiles survey & results of population size class assessment	Identifies population size classes of adder, common lizard, grass snake and slow worm based on a scale from high, medium, low and absent.	High Speed Two (HS2) Ltd	
River corridor survey extent	Extent of river corridor surveys.	High Speed Two (HS2) Ltd	
River habitat survey extent	Extent of river habitat surveys.	High Speed Two (HS2) Ltd	
Route in tunnel Route on surface	Represents the proposed route of HS2, split into route on surface and tunnelled sections.	High Speed Two (HS2) Ltd	
Site of Biological Importance (SBI)	supplied by Staffordshire Ecological Record (SER) and reproduced with the permission of the SER Partnership. Individual records within the data are copyright their original recorders and provided under licence via SER. - All data supplied by SER is to the best of SER's knowledge correct at the time of production. However, the precision or accuracy of SER data is usually based upon the original information supplied by the recorder and although SER strives to ensure all records are checked and validated, SER cannot be held responsible for any errors or omissions - The presence of a marked boundary within SER information does not infer any right of public access.	Staffordshire Ecological Record	Copyright © Staffordshire Ecological Record Partnership, (2013).
Site of Borough (Grade I) Importance for Nature Conservation (SBI.I)	SINCs are designated by a panel of local ecological professionals. This is a non-statutory designation, although SINCs are still afforded a high level of protection within the planning system. Development that negatively impacts on a SINC will only be permitted in exceptional circumstances and where mitigation can be proven from the beginning. Sites of Borough Importance (grade 1) are selected from candidates	Greenspace Information for Greater London (GiGL)	GiGL data [2013].

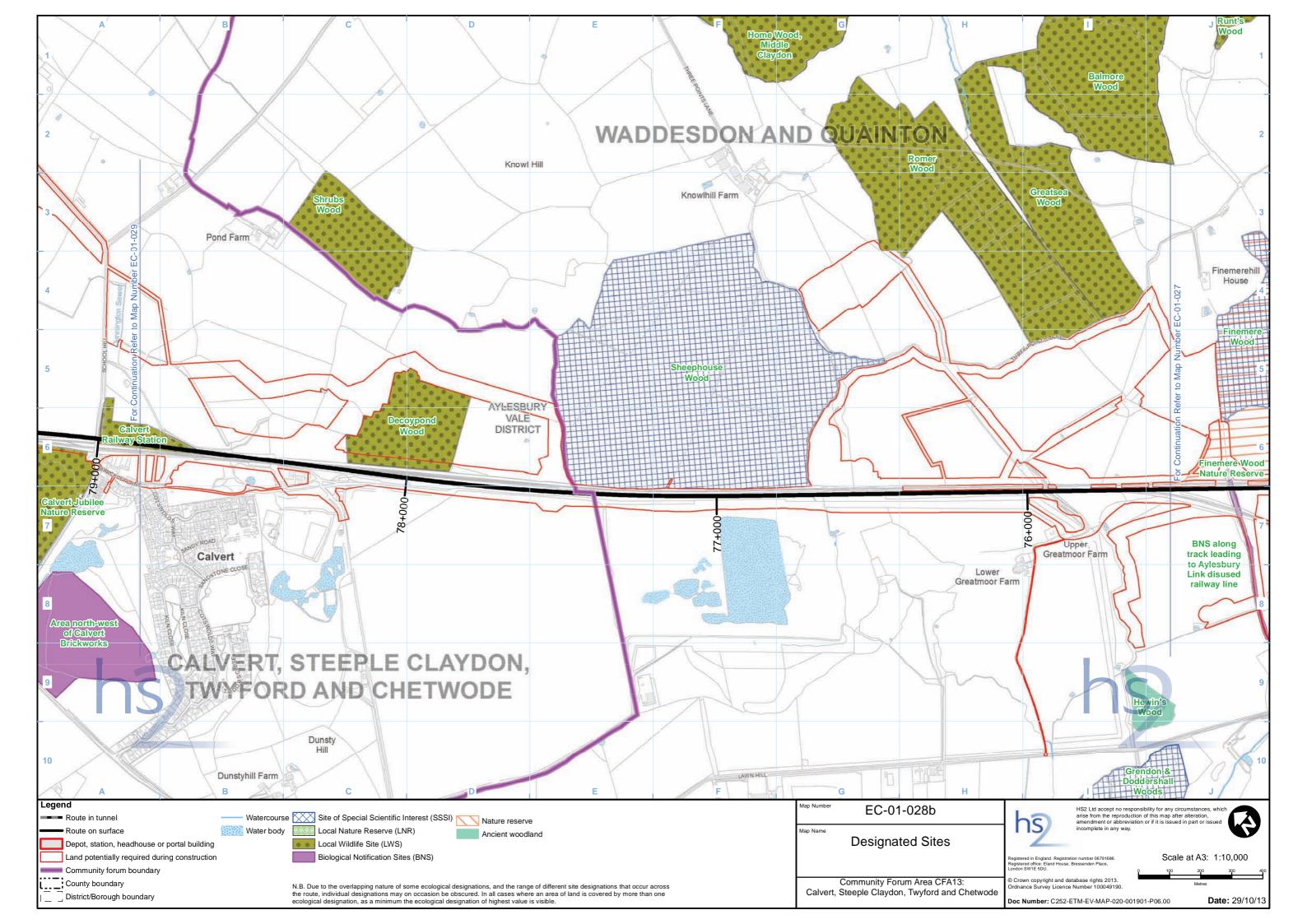
Legend features	Definition	Source	Copyright
	within each borough, so ensuring that borough has some sites identified.		
Site of Borough (Grade II) Importance for Nature Conservation (SBI.II)	SINCs are designated by a panel of local ecological professionals. This is a non-statutory designation, although SINCs are still afforded a high level of protection within the planning system. Development that negatively impacts on a SINC will only be permitted in exceptional circumstances and where mitigation can be proven from the beginning. Sites of Borough Importance (grade 2) are selected from candidates within each borough, so ensuring that borough has some sites identified.	Greenspace Information for Greater London (GiGL)	GiGL data (2013).
Site of Importance for Nature Conservation (SINC)	Also known as Local Wildlife Sites, these sites have a 'substantive nature conservation value'. They are defined areas, identified and selected locally for their nature conservation value, based on important, distinctive and threatened habitats and species with a national, regional and (importantly) a local context.	EcoRecord	Licensed in accordance with PSMA Crown Copyright and database rights 2012 Ordnance Survey Licence Number 1000049190.
Site of Local Importance for Nature Conservation (SLINC)	Also known as Local Wildlife Sites, these sites have a 'substantive nature conservation value'. They are defined areas, identified and selected locally for their nature conservation value, based on important, distinctive and threatened habitats and species with a national, regional and (importantly) a local context. The system in operation in London identifies three grades of SINC: Sites of Metropolitan Importance (SMI); Sites of Borough Importance (SBI); and Sites of Local Importance (SLI).	EcoRecord Greenspace Information for Greater London (GiGL)	Licensed in accordance with PSMA Crown Copyright and database rights 2012 Ordnance Survey Licence Number 1000049190. GiGL data (2013).
Site of Metropolitan Importance for Nature Conservation (SMI)	Sites of Metropolitan Importance are selected on a London-wide basis. These come under the umbrella designation of SINCs which are designated by a panel of local ecological professionals. This is a non-statutory designation, although SINCs are still afforded a high level of protection within the planning system. Development that negatively impacts on a SINC will only be permitted in exceptional circumstances and where mitigation can be proven from the beginning. Sites of Metropolitan Importance are selected on a London-wide basis.	Greenspace Information for Greater London (GiGL)	Licensed in accordance with PSMA Crown Copyright and database rights 2012 Ordnance Survey Licence Number 1000049190. GiGL data (2013).
Site of Special Scientific Interest (SSSI)	A Site of Special Scientific Interest (SSSI) is the land notified as an SSSI under the Wildlife and Countryside Act (1981), as amended.	Natural England	© Natural England copyright 2013 Contains Ordnance Survey data © Crown copyright and database right 2013. All rights reserved. Ordnance Survey Licence number 100022021. http://www.naturalengland.org.uk/Images/opengovernment-licence-NE-OS_tcm6-30743.pdf
Terrestrial invertebrate: Terrestrial invertebrate survey extent	Extent of terrestrial invertebrate survey.	High Speed Two (HS2) Ltd	
Water body	Based on Ordnance Survey Vector Map District.	Ordnance Survey	© Crown Copyright and database rights 2013 Ordnance Survey Licence Number 100049190.
Water vole: Water vole survey undertaken – presence confirmed Water vole survey undertaken – assumed absent Watercourse potentially suitable for water vole – no or limited access for survey	Extent of water vole survey. Those areas where access was available either had confirmed presence or water voles were assumed absent.	High Speed Two (HS2) Ltd	,
Watercourse	The Detailed River Network (DRN) is the only large-scale, accurate and fully attributed digital river centreline covering England and Wales.	Environment Agency	Contains Environment Agency information © Environment Agency and database right.

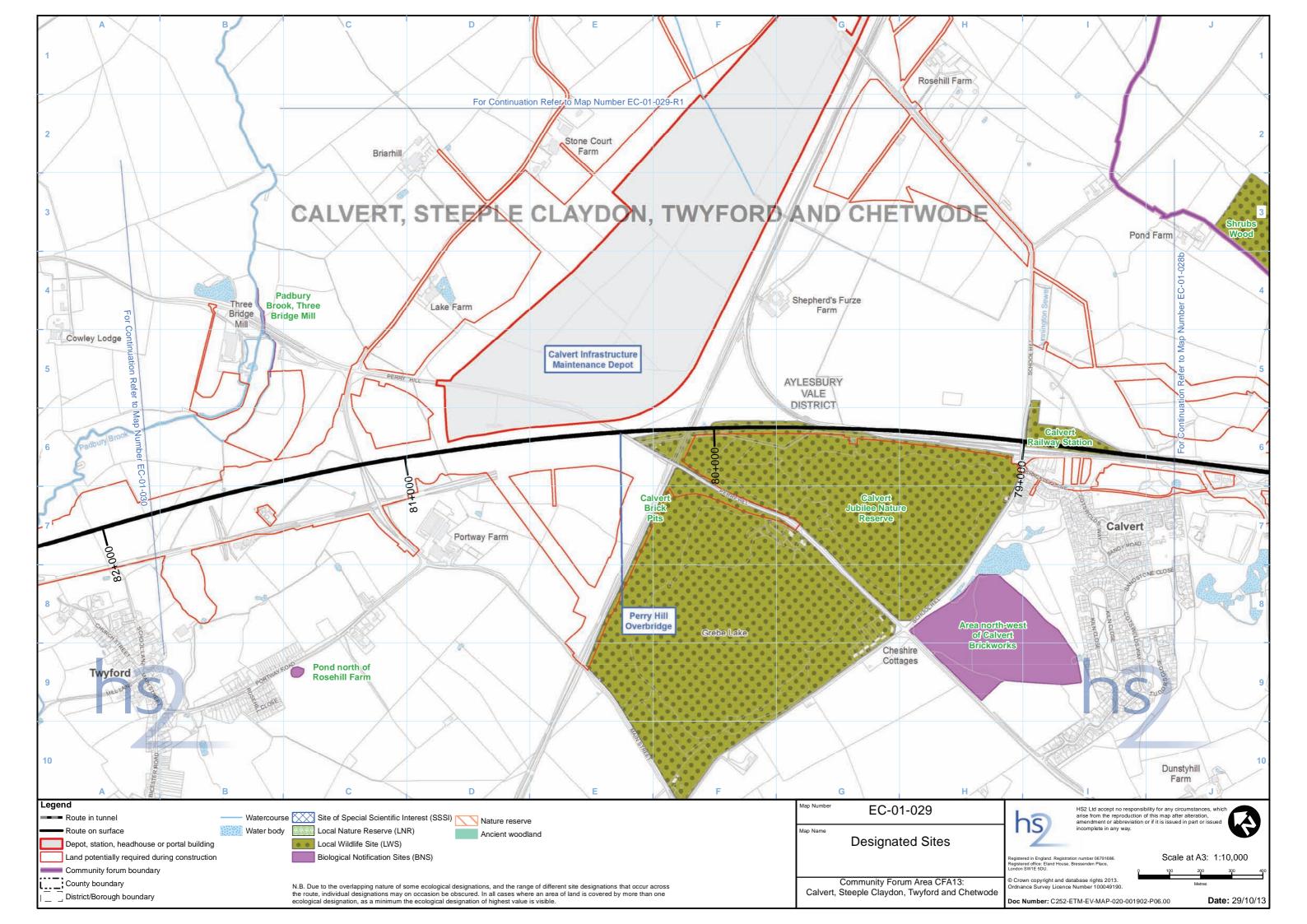
Legend features	Definition	Source	Copyright
White clawed crayfish: Manual search and/or trapping conducted and presence confirmed Manual search and/or trapping conducted and assumed absent Site identified as potentially suitable but no access available	Location where white clawed crayfish survey was conducted. Location categorised as to whether presence was confirmed, assumed absent or no access was available.	High Speed Two (HS2) Ltd	
Wintering and passage birds - protection status: Species listed on Annex I of the Birds Directive Species listed on Schedule 1 of the Wildlife and Countryside Act Species listed on Annex I of the Birds Directive and Schedule 1 of the Wildlife and Countryside Act Species listed on Birds of Conservation Concern list relevant to assessment – see Volume 5 Appendices Other notable species relevant to assessment – see Volume 5 Appendices	Field survey records of selected protected and/or notable wintering birds that are considered most relevant in considering the impacts of the Proposed Scheme.	High Speed Two (HS2) Ltd	
Wintering and passage birds - survey extent	Area where wintering and passage birds survey was conducted.	High Speed Two (HS2) Ltd	
Woodland (not verified by survey) Woodland (verified by survey)	Woodland areas derived from Ordnance Survey mastermap data.	Ordnance Survey	© Crown Copyright and database rights 2013 Ordnance Survey Licence Number 100049190.

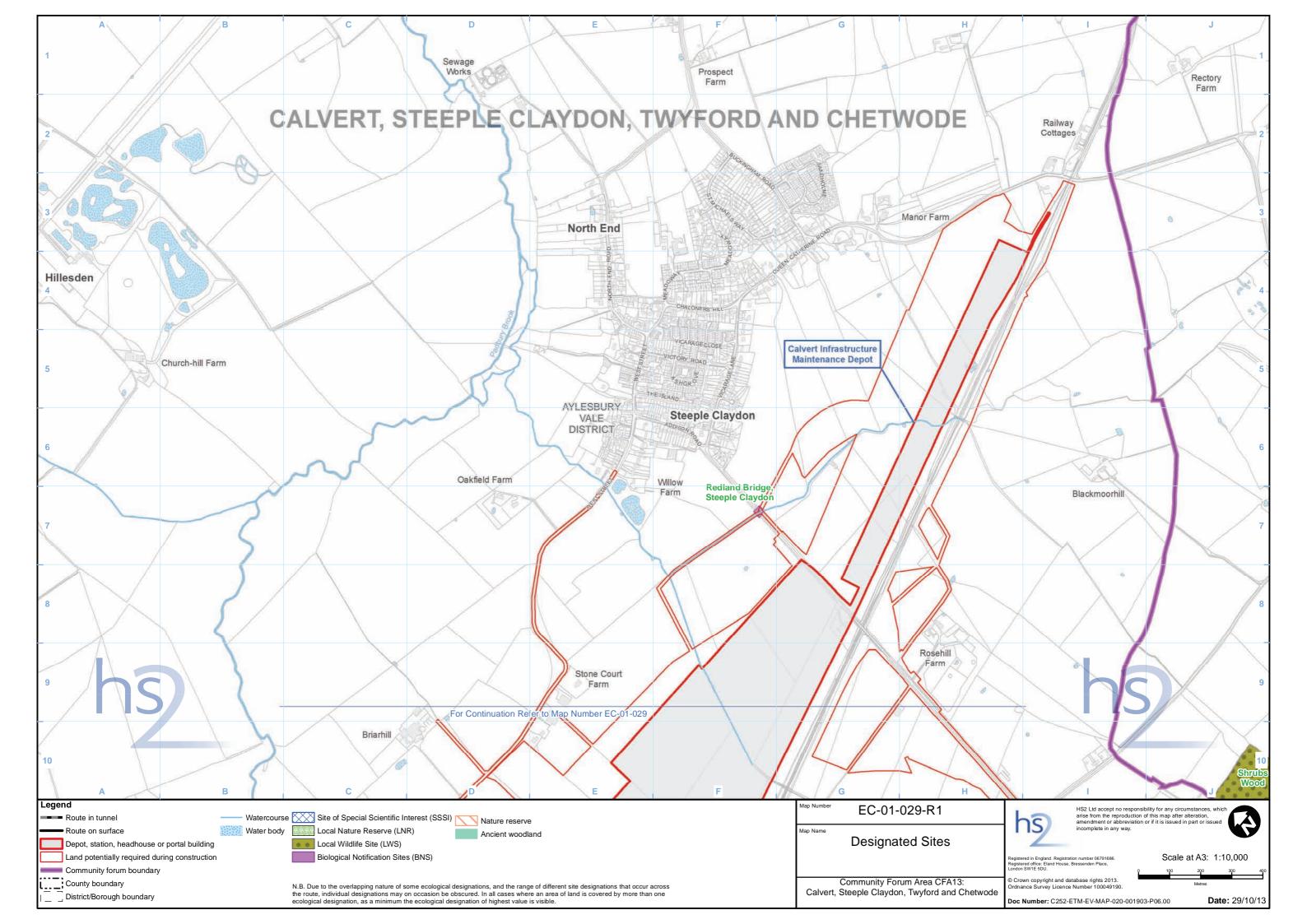


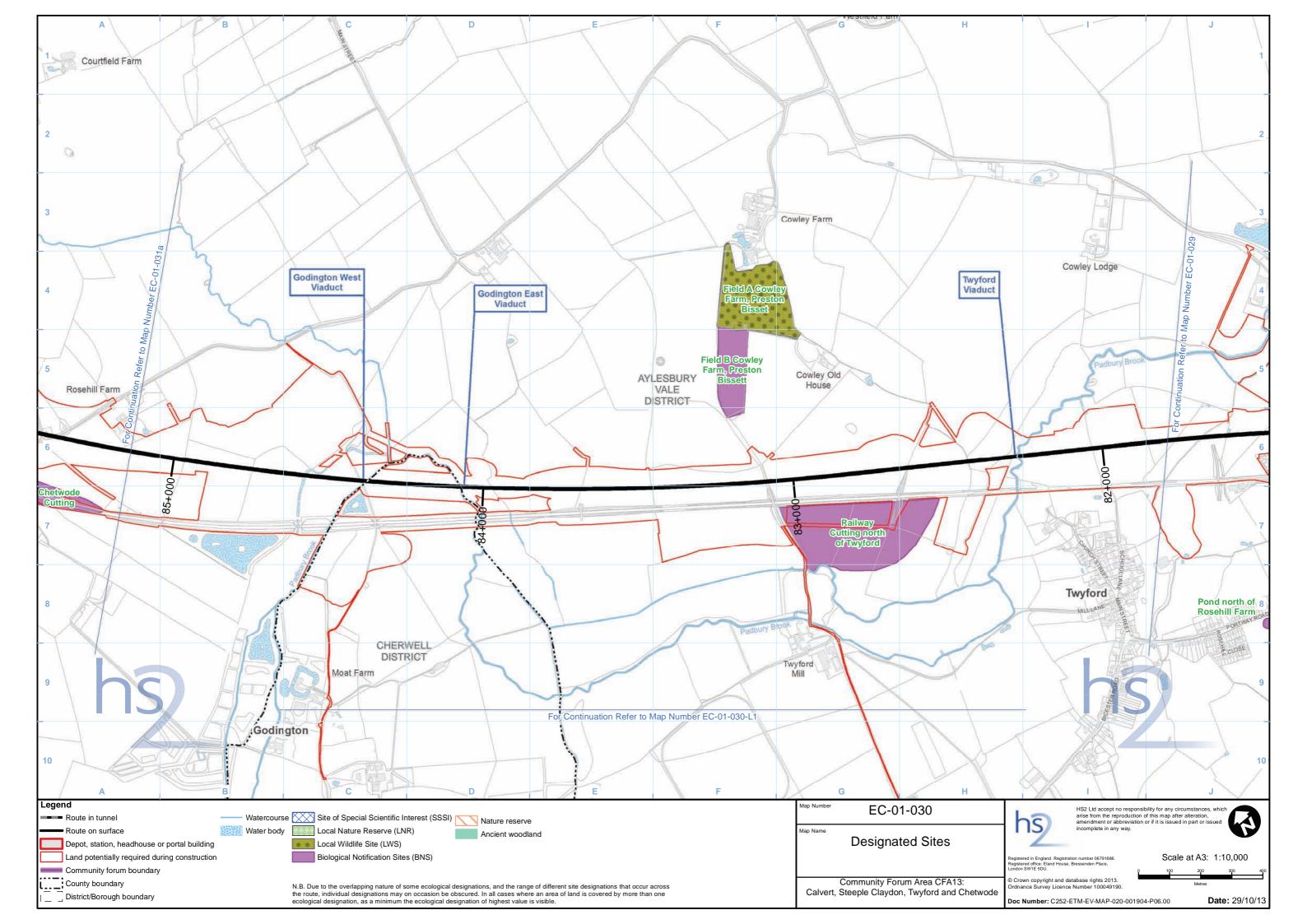
EC-o1 – Designated Sites

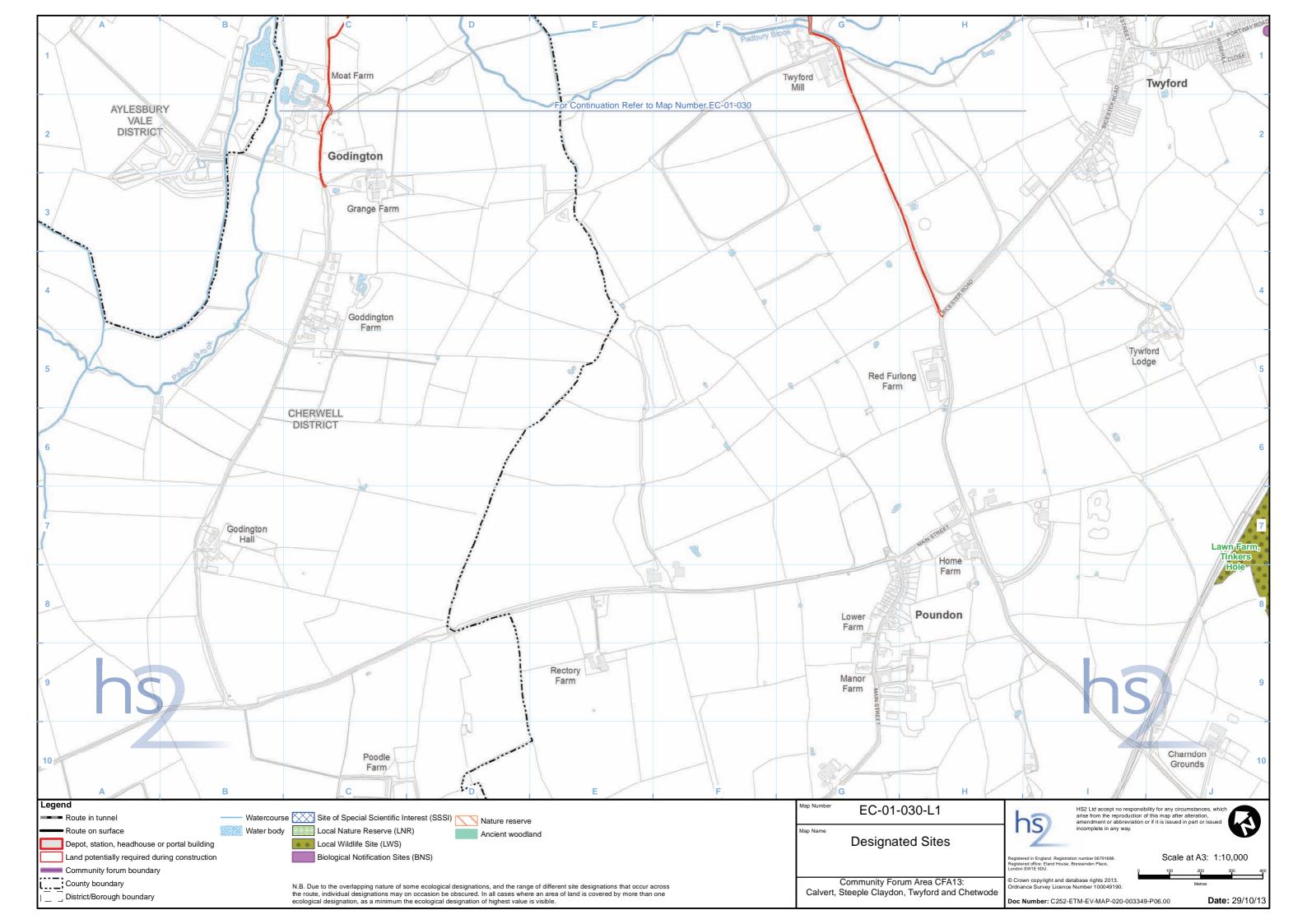


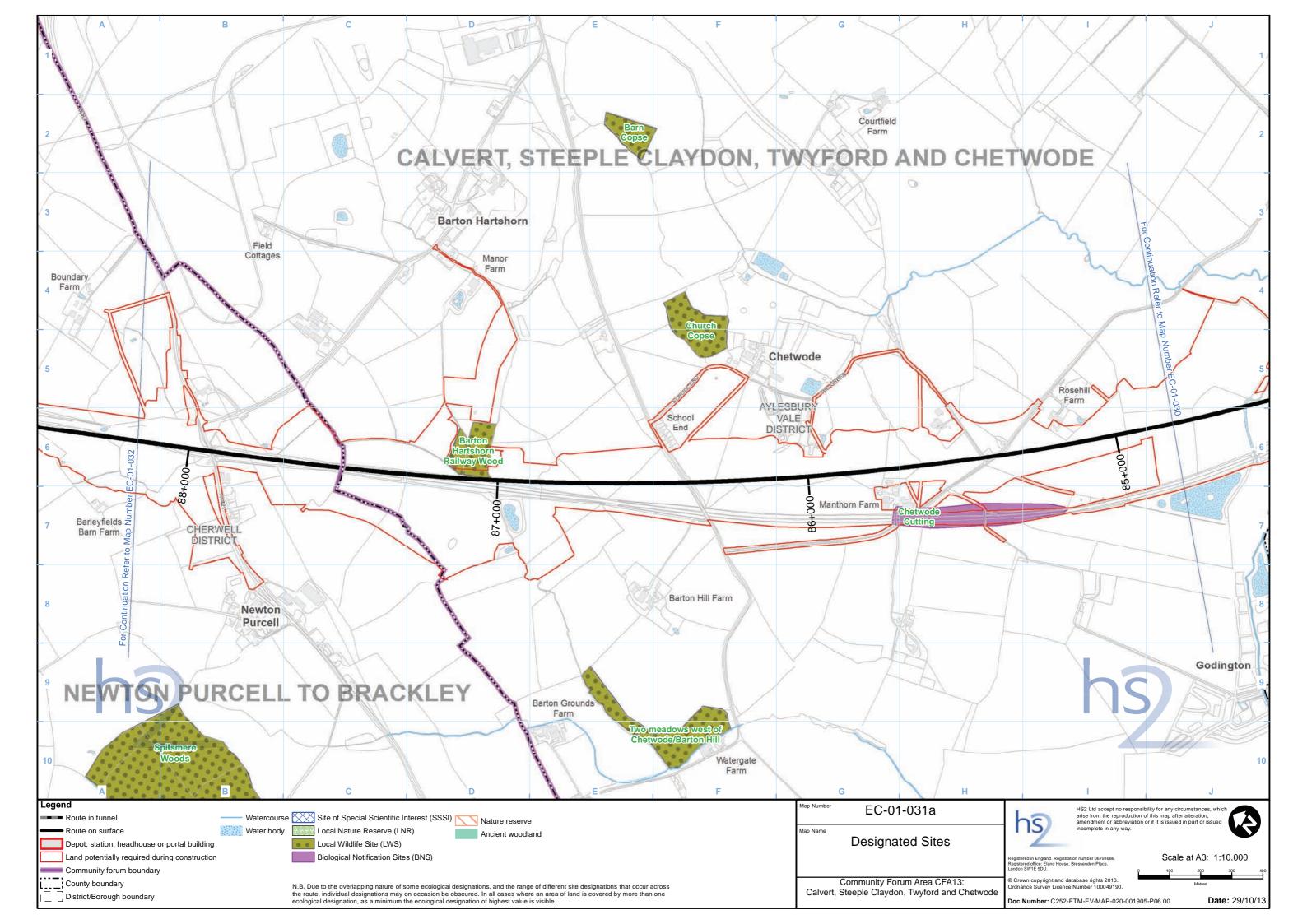






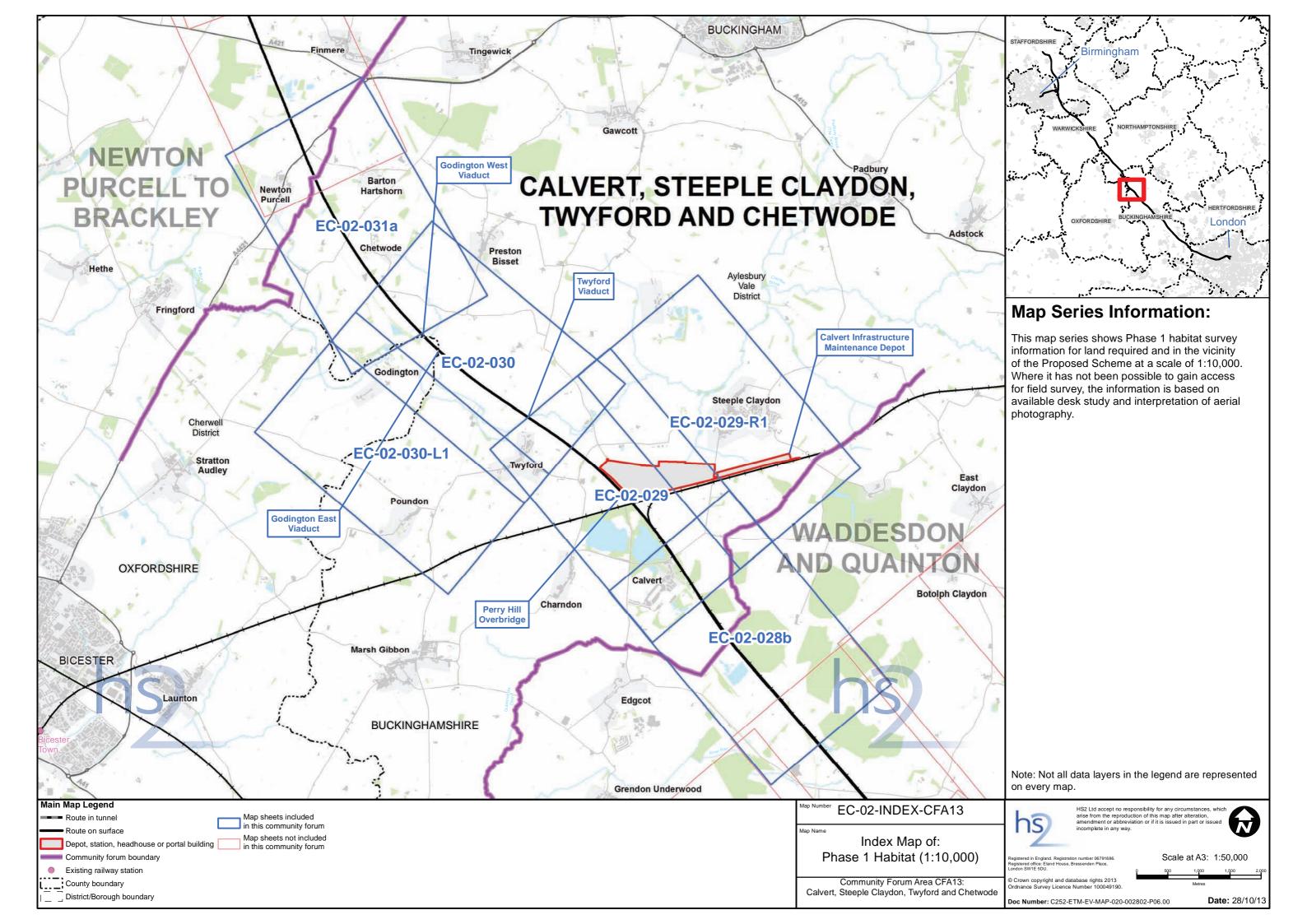








EC-02 - Phase 1 Habitat (1:10,000)



Phase 1 Habitat survey legend

Marsh/marshy grassland

Habitat Areas	SI	Poor semi-improved grassland	S	Spoil
Broadleaved woodland - semi-natural		Bracken - continuous	. R	Refuse-tip
Broadleaved woodland - plantation	<××	Bracken - scattered	. A	Cultivated/disturbed land - arable
Coniferous woodland - semi-natural		Upland species-rich ledges	. A .	Cultivated/disturbed land - amenity grassland
Coniferous woodland - plantation		Other tall herb and fern - ruderal	kxx	Cultivated/disturbed land - ephemeral/short per
Mixed woodland - semi-natural		Other tall herb and fern - non ruderal		Introduced shrub
Mixed woodland - plantation		Dry dwarf shrub heath - acid	/////	Intact hedge - native species-rich
Scrub - dense/continuous	$\times \times \times$	Lichen/bryophyte heath		Intact hedge - species-poor
×× Scrub - scattered		Dry heath/acid grassland	/ \4\4\ ⁴ \1 4\4\4\4\	Defunct hedge - native species-rich
Broadleaved parkland/scattered trees		Wet modified bog		Defunct hedge - species-poor
Coniferous parkland/scattered trees	VM	Fen - valley mire	VVV	Hedge with trees - native species-rich
Mixed parkland/scattered trees		Swamp	11111111	Hedge with trees - species-poor
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$		Marginal and inundation - inundation vegetation		Fence
F F Mixed woodland - recently felled		Standing water		Wall
Acid grassland - unimproved	EE	Standing water - eutrophic		Dry ditch
Acid grassland - semi-improved	M M	Standing water - mesotrophic	^	Boundary removed
Neutral grassland - unimproved		Running water	•••	Earth bank
SI Neutral grassland - semi-improved		Limestone pavement	\bowtie	Caravan site
Calcareous grassland - unimproved		Other exposure - basic		Buildings
Calcareous grassland - semi-improved	C C	Cave	••	Bare ground
I I Improved grassland	QQ	Quarry		Other habitat

Linear Habitats $\times \times \times$ Scrub - scattered Broadleaved parkland/scattered trees Coniferous parkland/scattered trees ped land - ephemeral/short perennial • • • Mixed parkland/scattered trees Upland species-rich ledges Marginal and inundation - marginal vegetation ----- Running water ₩₩ Intact hedge - native species-rich Intact hedge - species-poor ₩\\ Defunct hedge - native species-rich - - · Defunct hedge - species-poor WWW Hedge with trees - native species-rich ##### Hedge with trees - species-poor ##### Fence ----- Wall - - · Dry ditch

Point Habitats

- × Scrub scattered
- Broadleaved parkland/scattered trees
- Coniferous parkland/scattered trees
- Bracken scattered

XXX Boundary removed

●●●● Earth bank

EC-02 - Legend

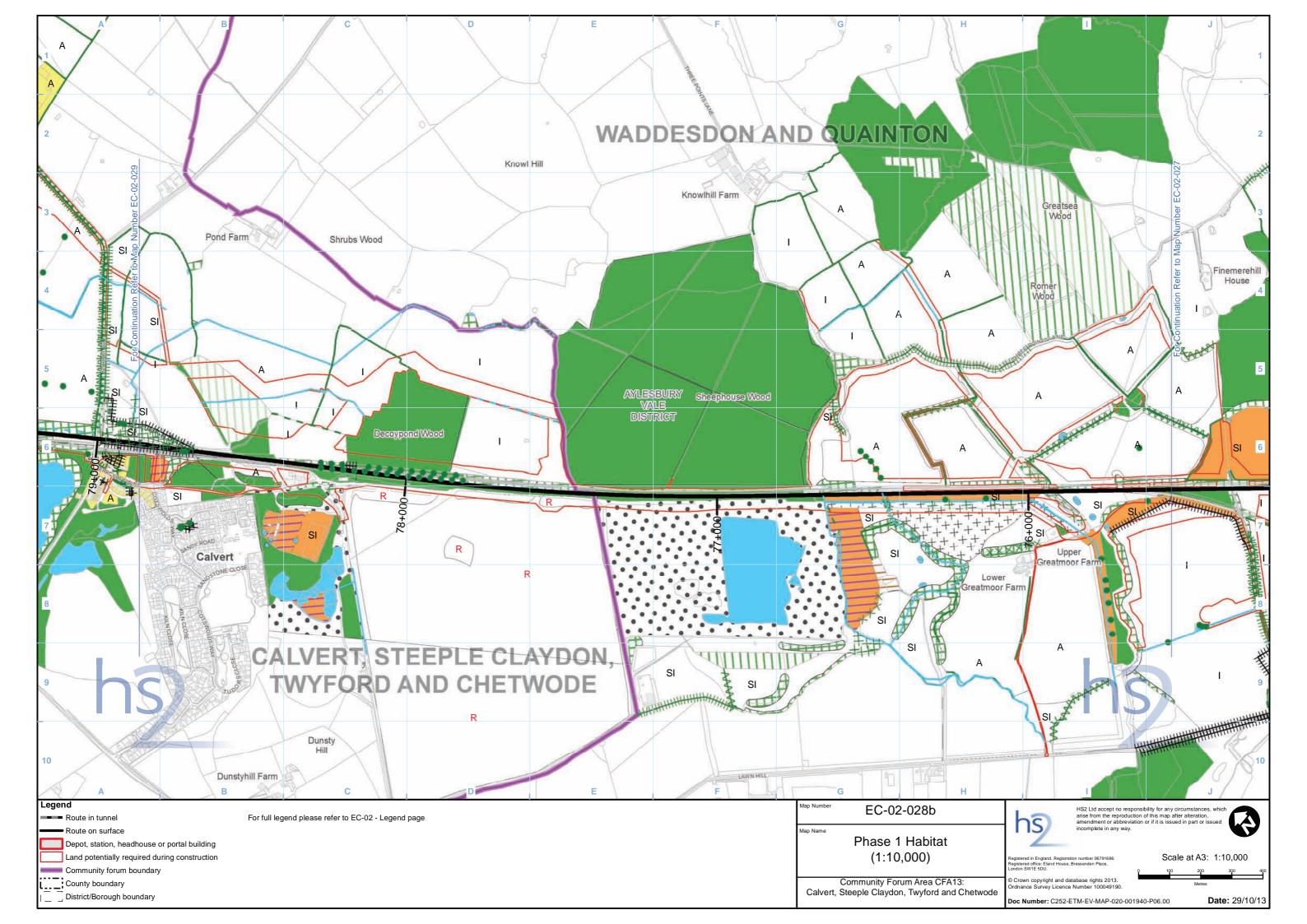
EC-02 - Phase 1 Habitat Survey Legend

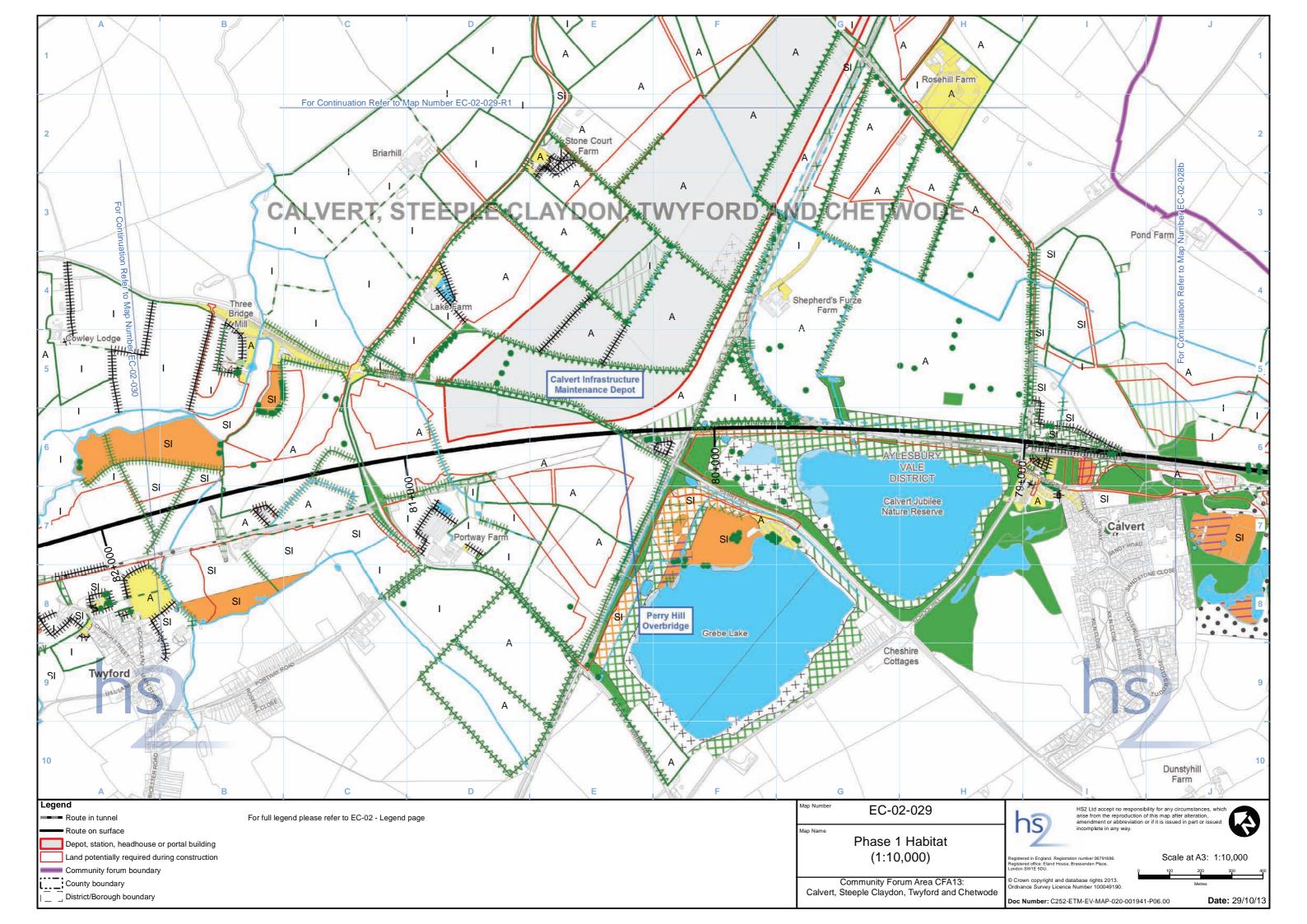


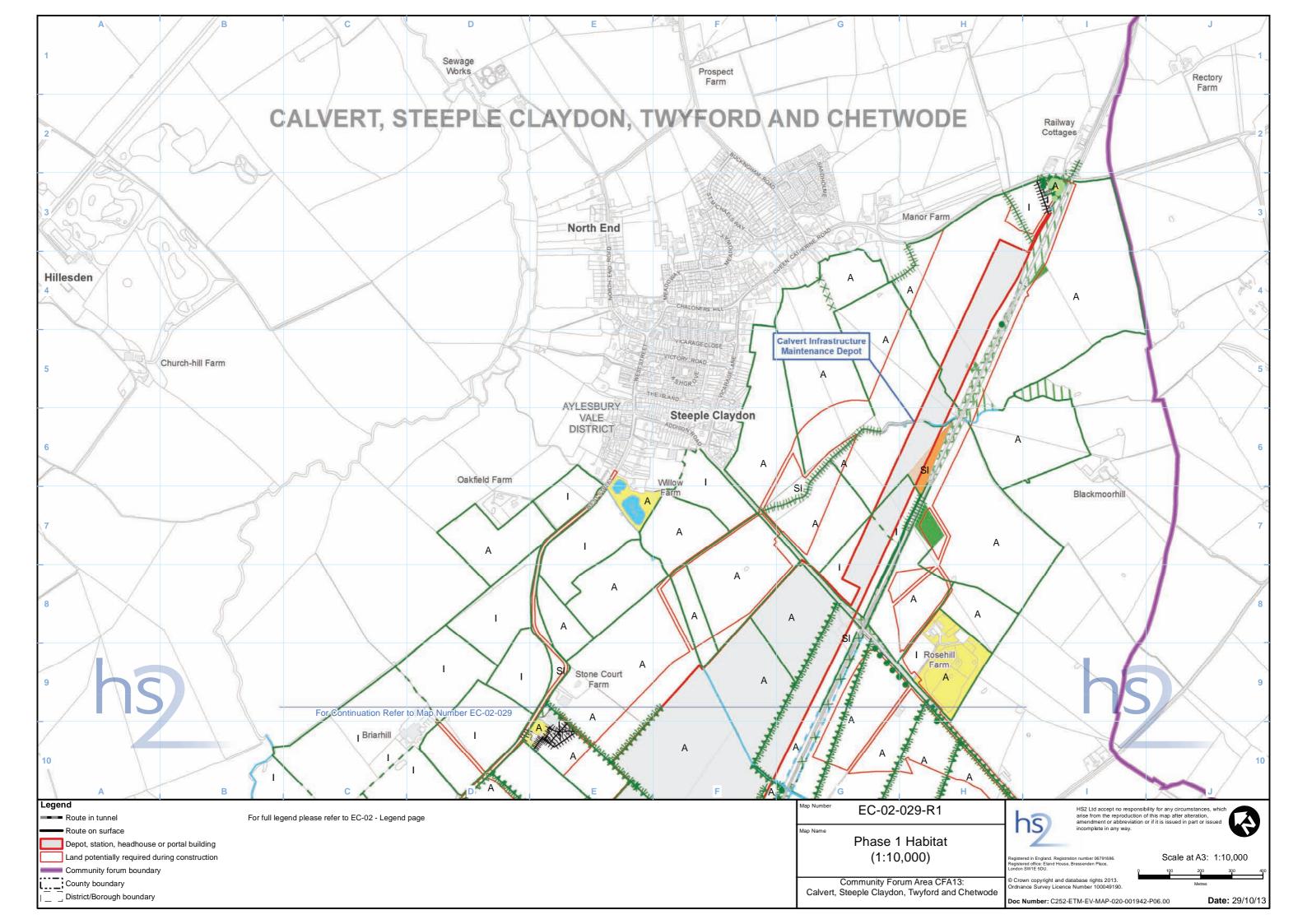
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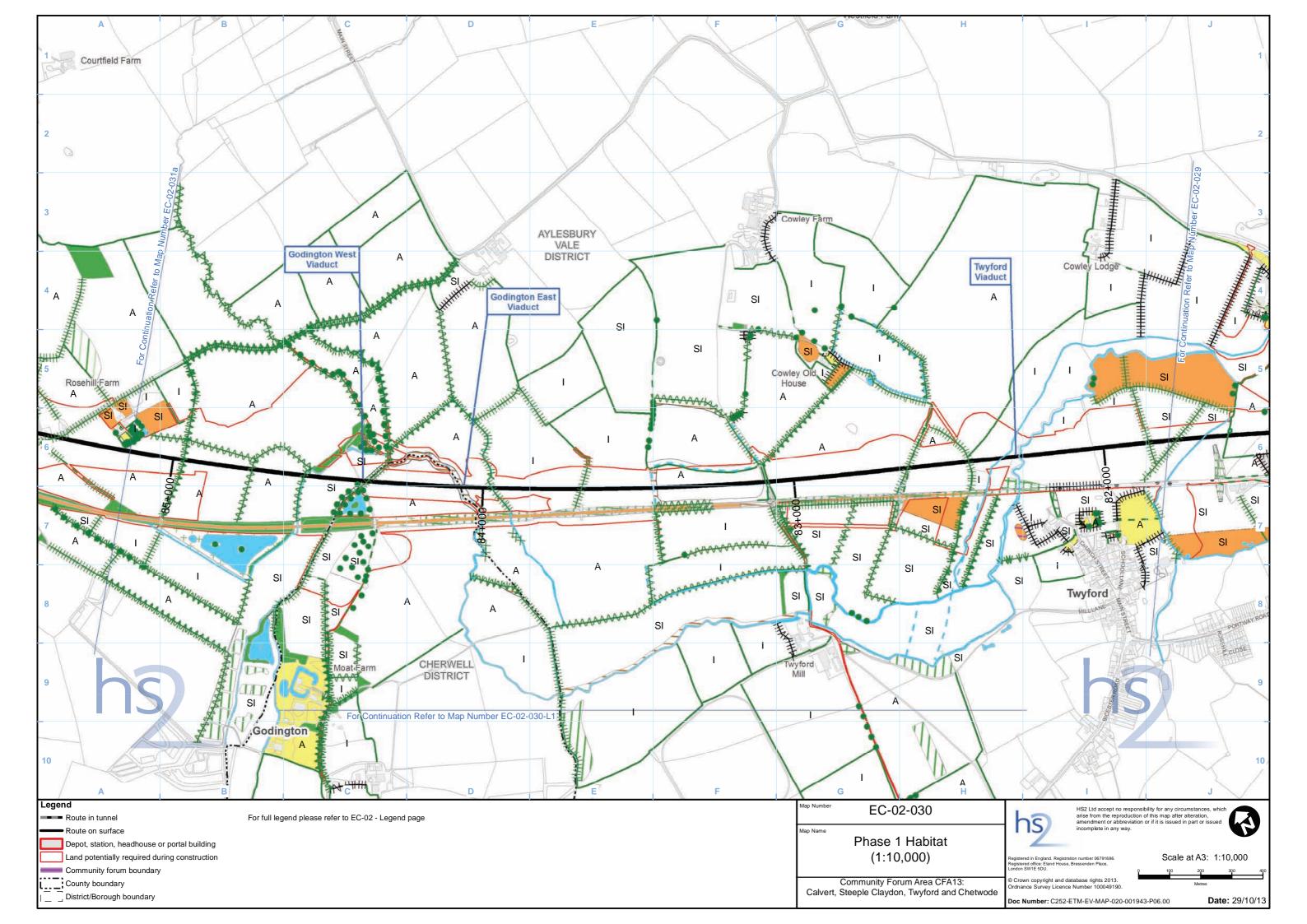
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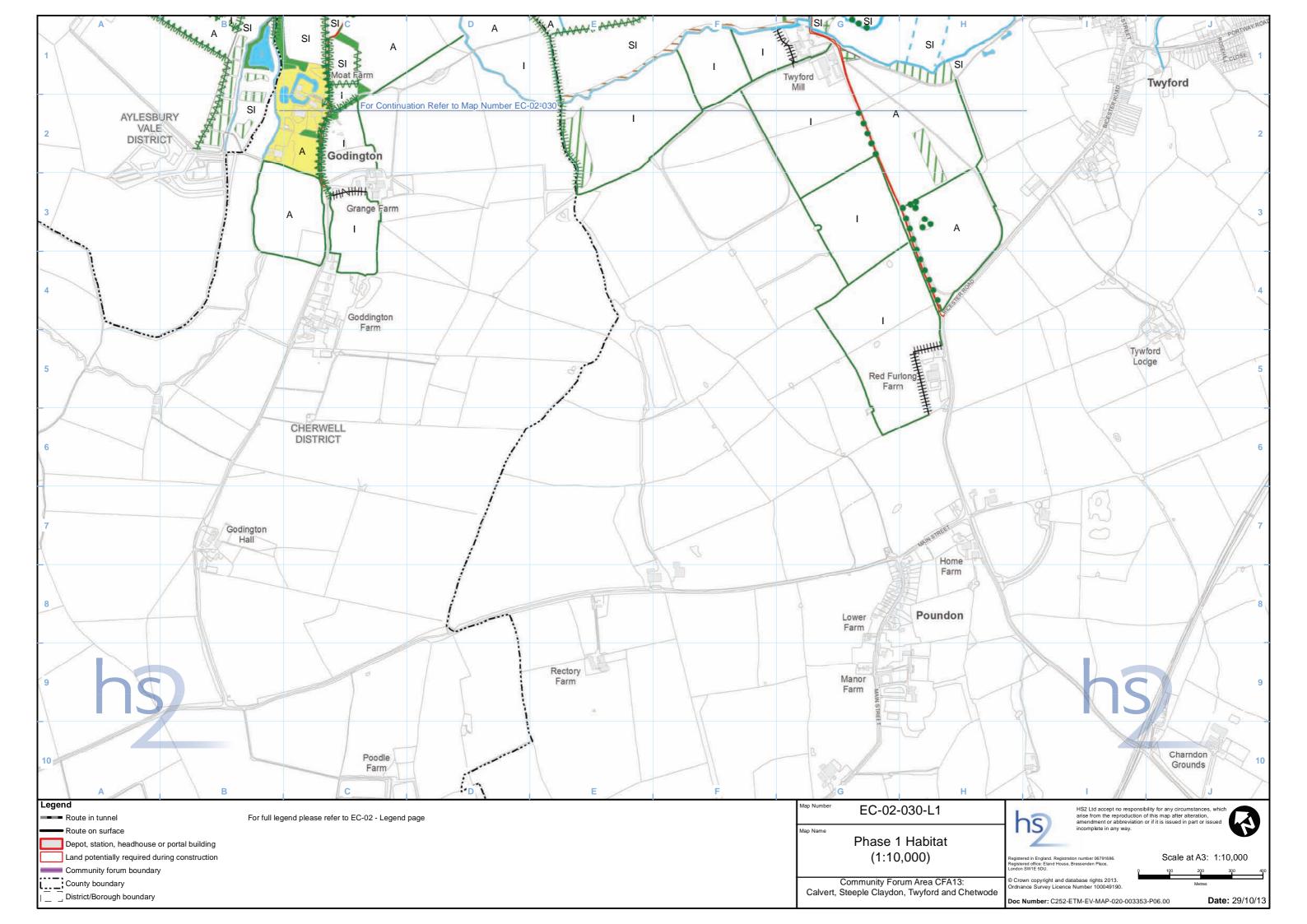
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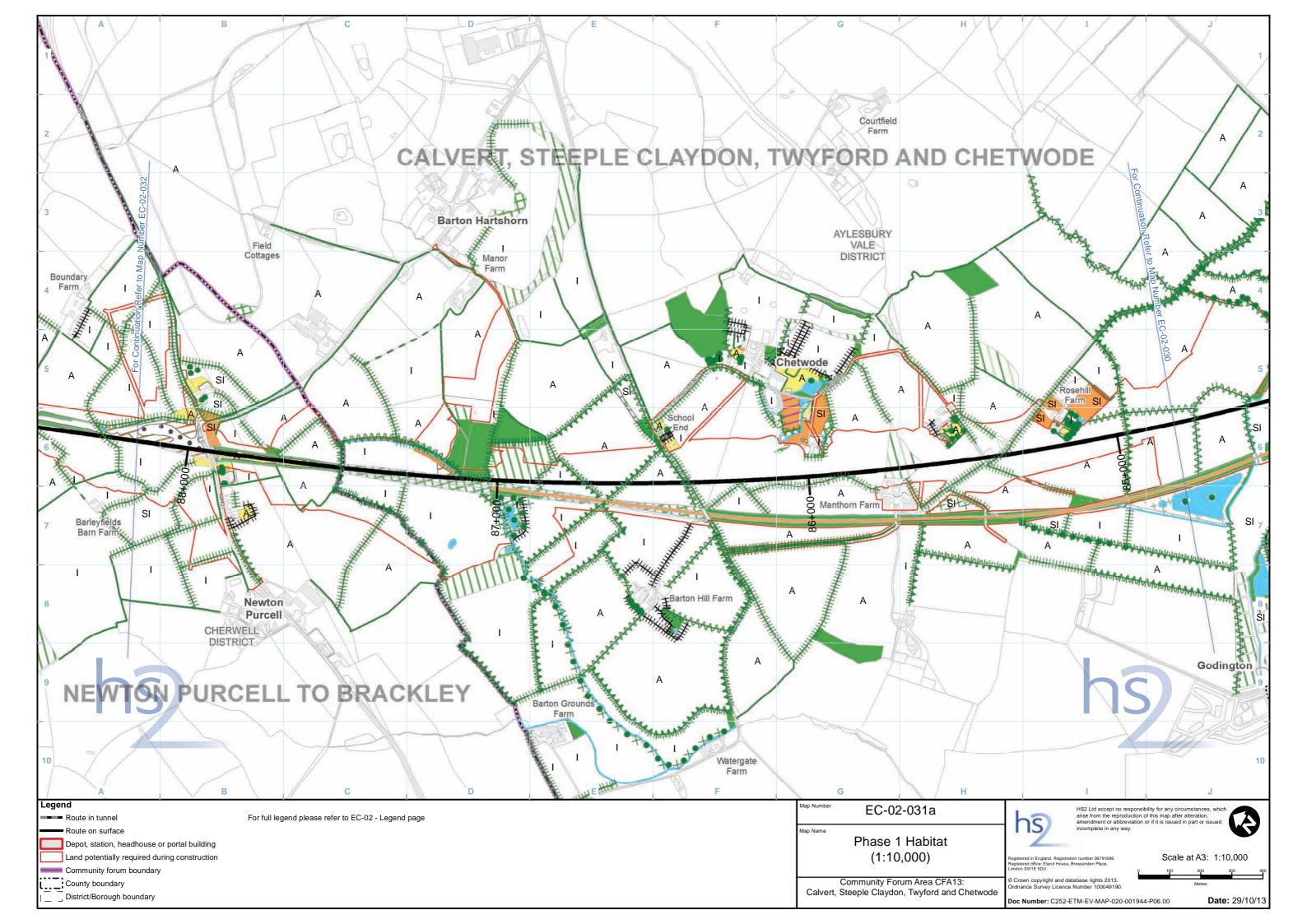








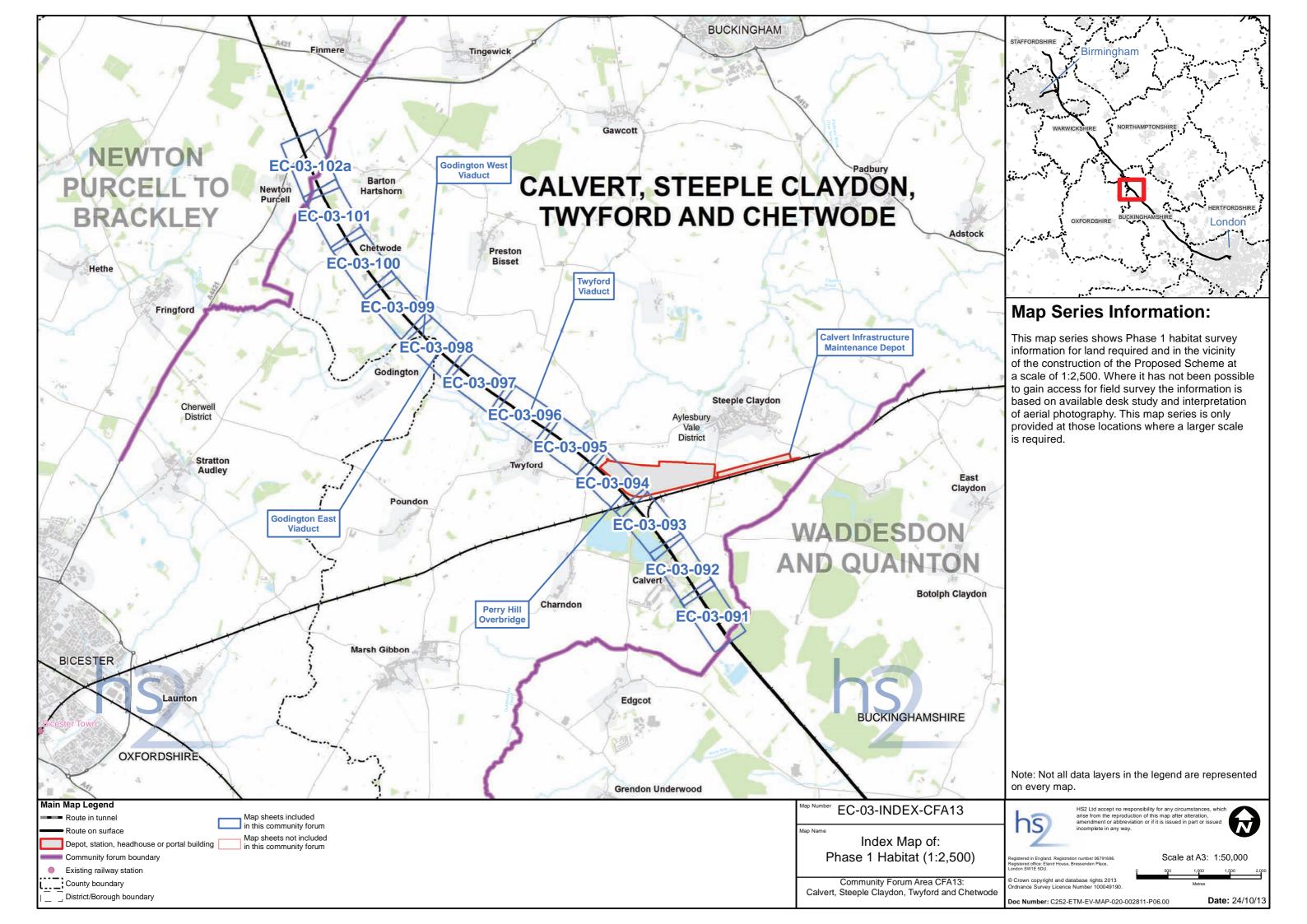




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EC-03 – Phase 1 Habitat (1:2,500)



Phase 1 Habitat survey legend

Habitat Areas	SI	Poor semi-improved grassland	S	Spoil	Linea	r Habitats	F
Broadleaved woodland - semi-natural		Bracken - continuous	. R	Refuse-tip	×××	Scrub - scattered	
Broadleaved woodland - plantation	$\times \times \rangle$	Bracken - scattered	A	Cultivated/disturbed land - arable	• • •	Broadleaved parkland/scattered trees	
Coniferous woodland - semi-natural		Upland species-rich ledges	. A .	Cultivated/disturbed land - amenity grassland	• • •	Coniferous parkland/scattered trees	
Coniferous woodland - plantation		Other tall herb and fern - ruderal	ΚχΧ	Cultivated/disturbed land - ephemeral/short perennial	• • •	Mixed parkland/scattered trees	
Mixed woodland - semi-natural		Other tall herb and fern - non ruderal		Introduced shrub		 Upland species-rich ledges 	
Mixed woodland - plantation		Dry dwarf shrub heath - acid	/√√√	Intact hedge - native species-rich		Marginal and inundation - marginal vegetation	n
Scrub - dense/continuous	$\times \times \times$	Lichen/bryophyte heath		Intact hedge - species-poor		Running water	
× × Scrub - scattered		Dry heath/acid grassland	/ \ / \A/ \ /\	Defunct hedge - native species-rich	₩	Intact hedge - native species-rich	
Broadleaved parkland/scattered trees		Wet modified bog		Defunct hedge - species-poor		Intact hedge - species-poor	
Coniferous parkland/scattered trees	VM	Fen - valley mire	V V V	Hedge with trees - native species-rich	\ \ \\	Defunct hedge - native species-rich	
Mixed parkland/scattered trees		Swamp	11111111	Hedge with trees - species-poor		Defunct hedge - species-poor	
F F Broadleaved woodland - recently felled		Marginal and inundation - inundation vegetation		Fence	WWW	Hedge with trees - native species-rich	
F F Mixed woodland - recently felled		Standing water		Wall	 	Hedge with trees - species-poor	
Acid grassland - unimproved	E E	Standing water - eutrophic		Dry ditch	 	Fence	
Acid grassland - semi-improved	M M	Standing water - mesotrophic	$\stackrel{\wedge}{\times}\stackrel{\wedge}{\times}$	Boundary removed		Wall	
Neutral grassland - unimproved		Running water	•••	Earth bank		Dry ditch	
SI Neutral grassland - semi-improved		Limestone pavement	\bowtie	Caravan site	×××	- Boundary removed	
Calcareous grassland - unimproved		Other exposure - basic		Buildings	•••	Earth bank	
Calcareous grassland - semi-improved	C C	Cave	• •	Bare ground			
I I Improved grassland	QQ	Quarry		Other habitat			
Marsh/marshy grassland							

Point Habitats

- × Scrub scattered
- Broadleaved parkland/scattered trees
- Coniferous parkland/scattered trees
- Bracken scattered

EC-03 - Legend

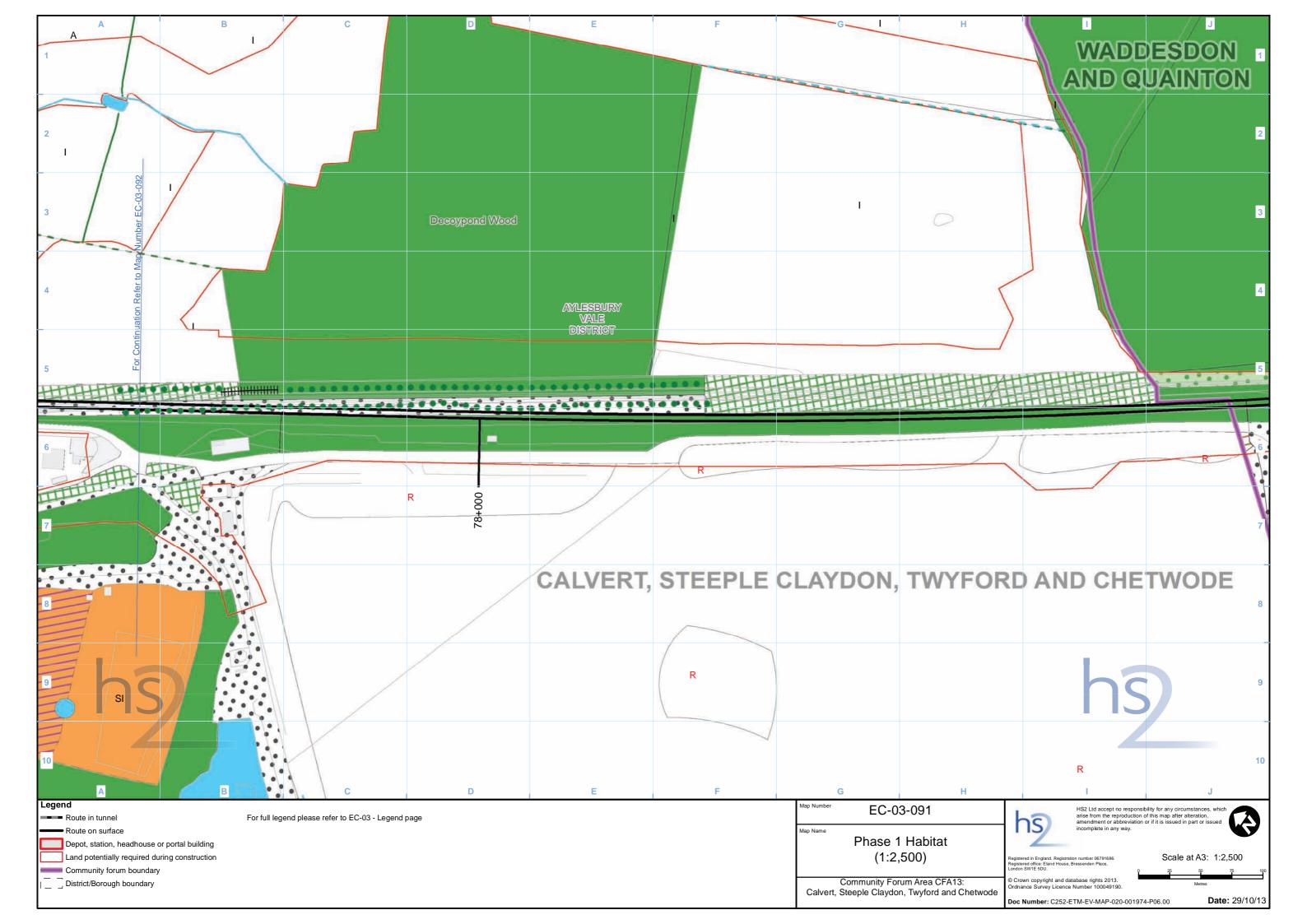
EC-03 - Phase 1 Habitat Survey Legend

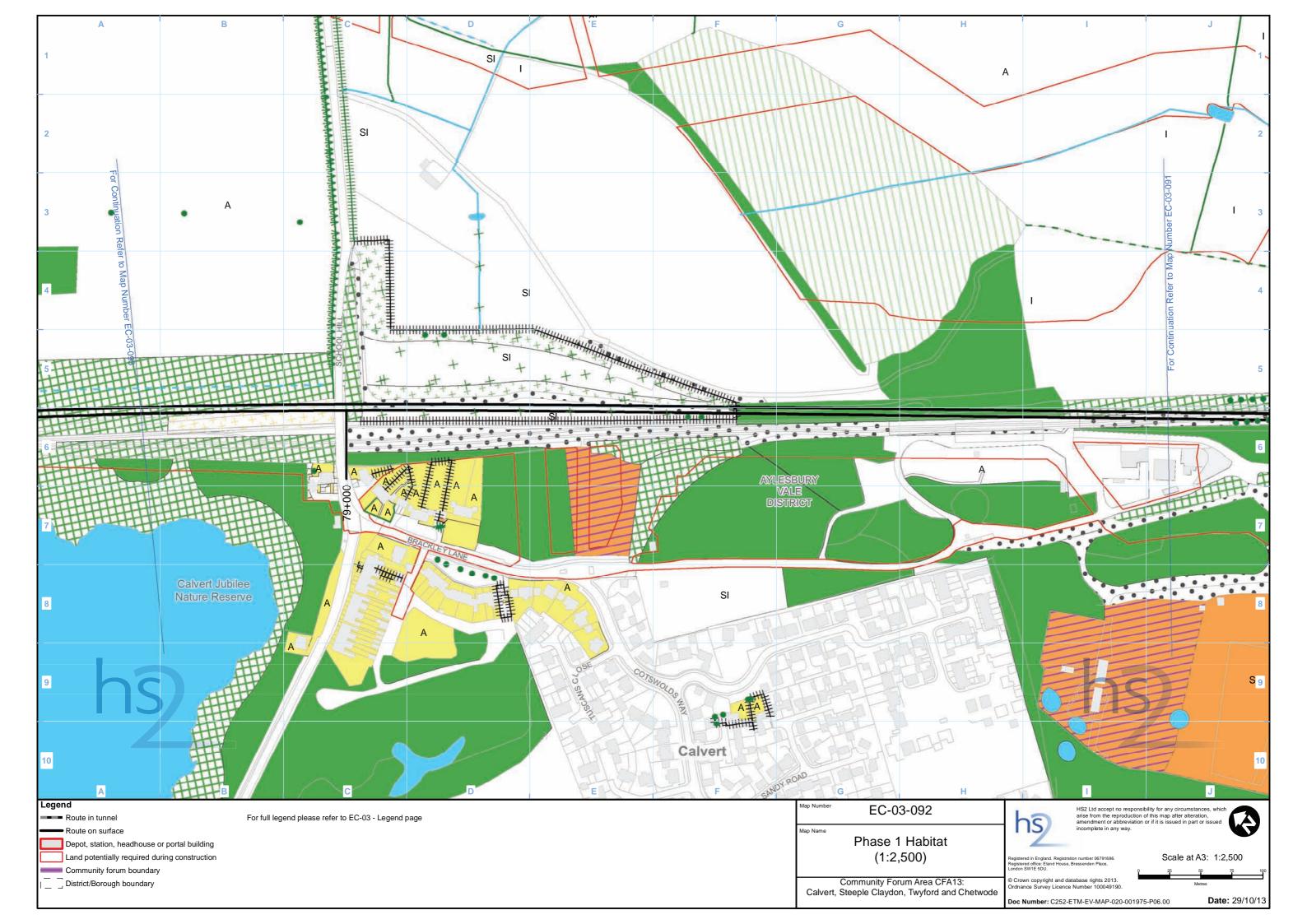


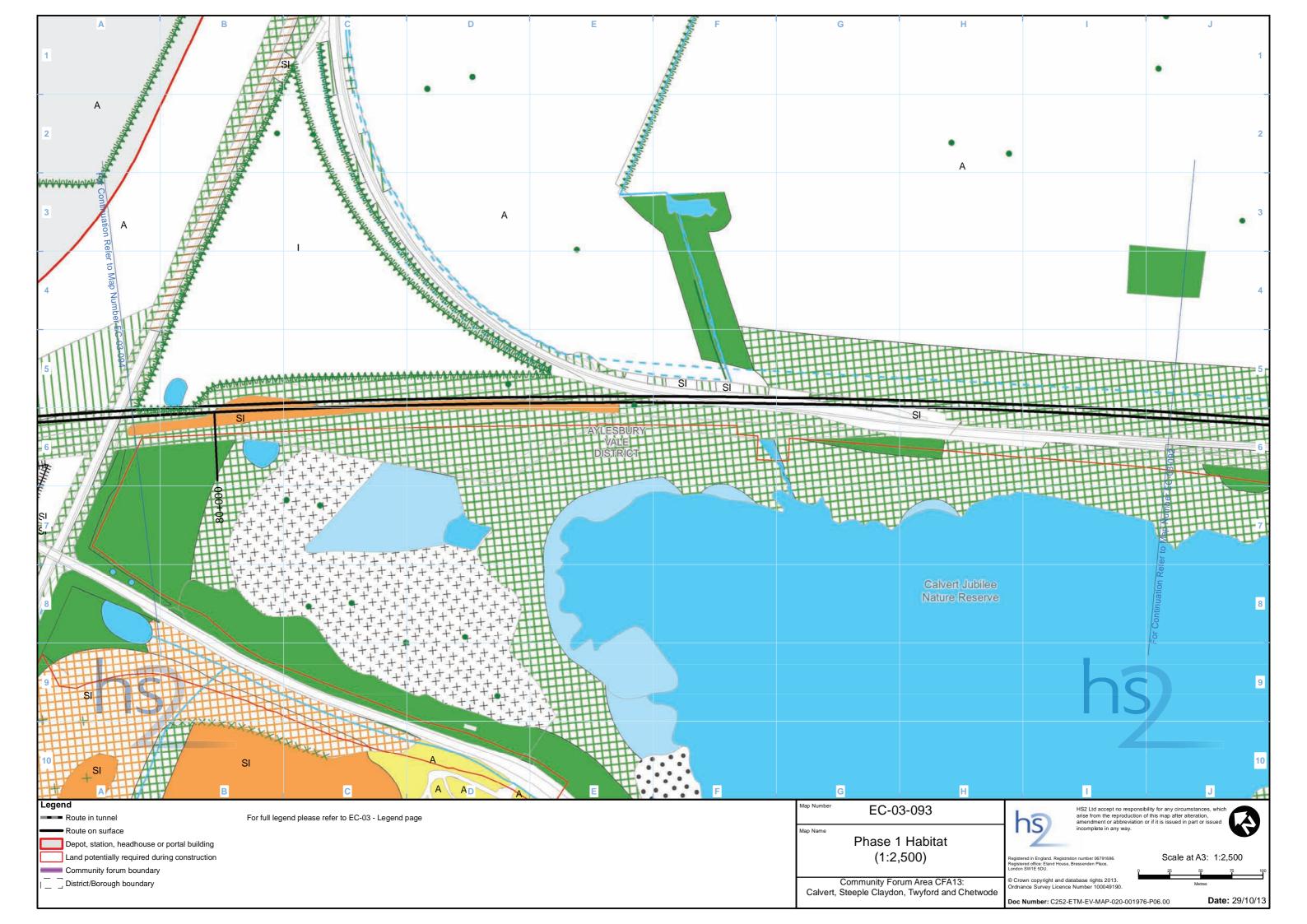
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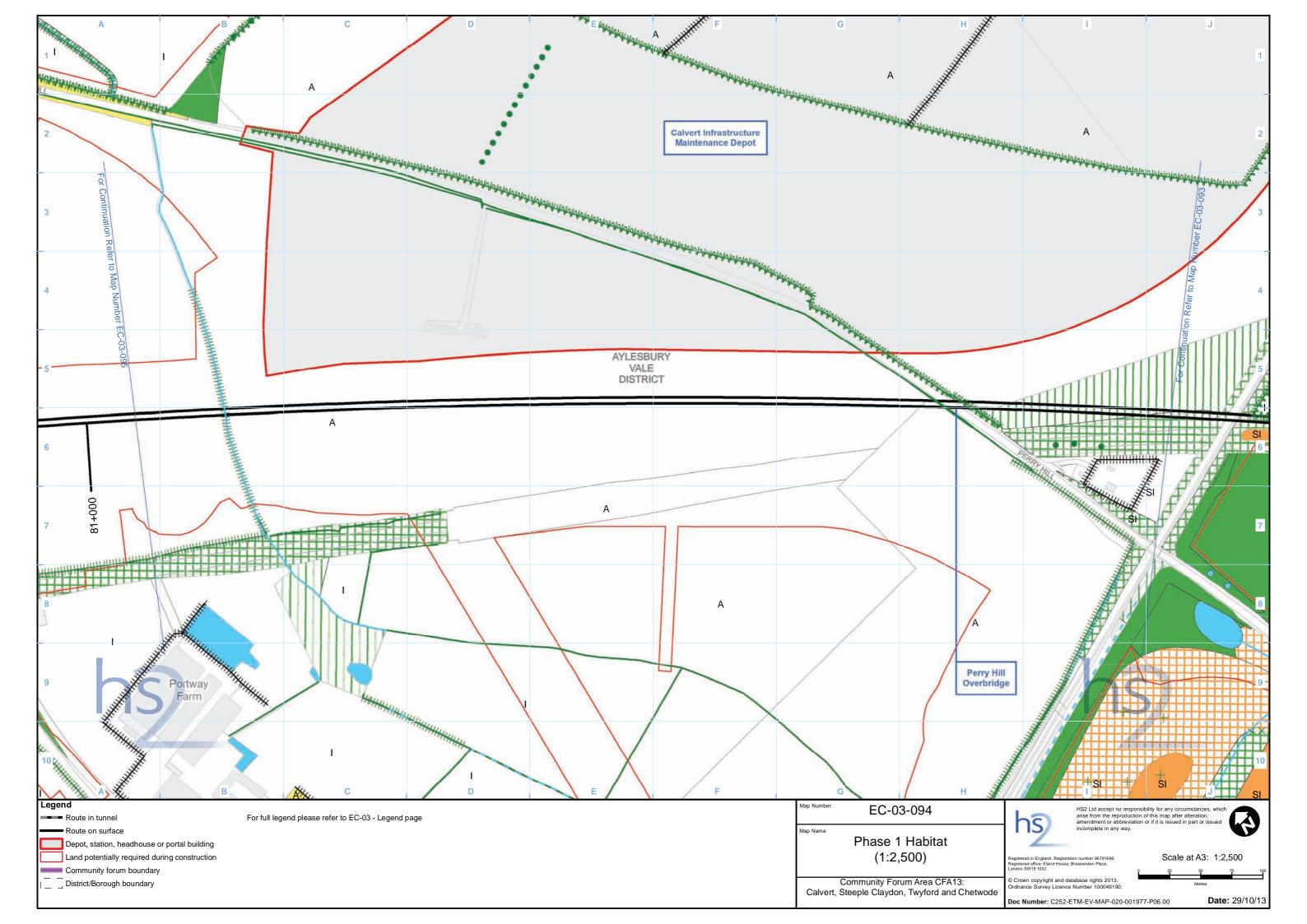
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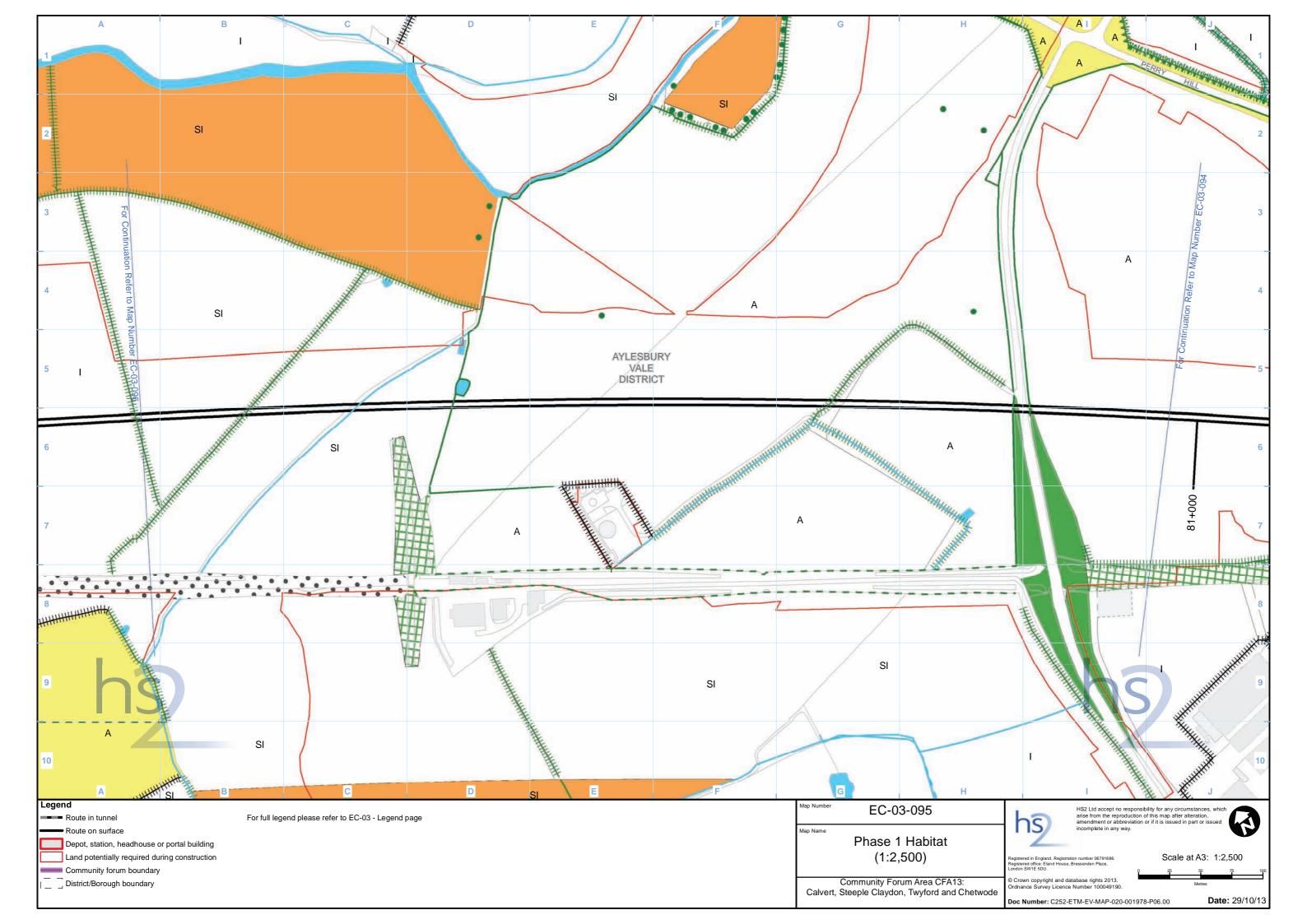
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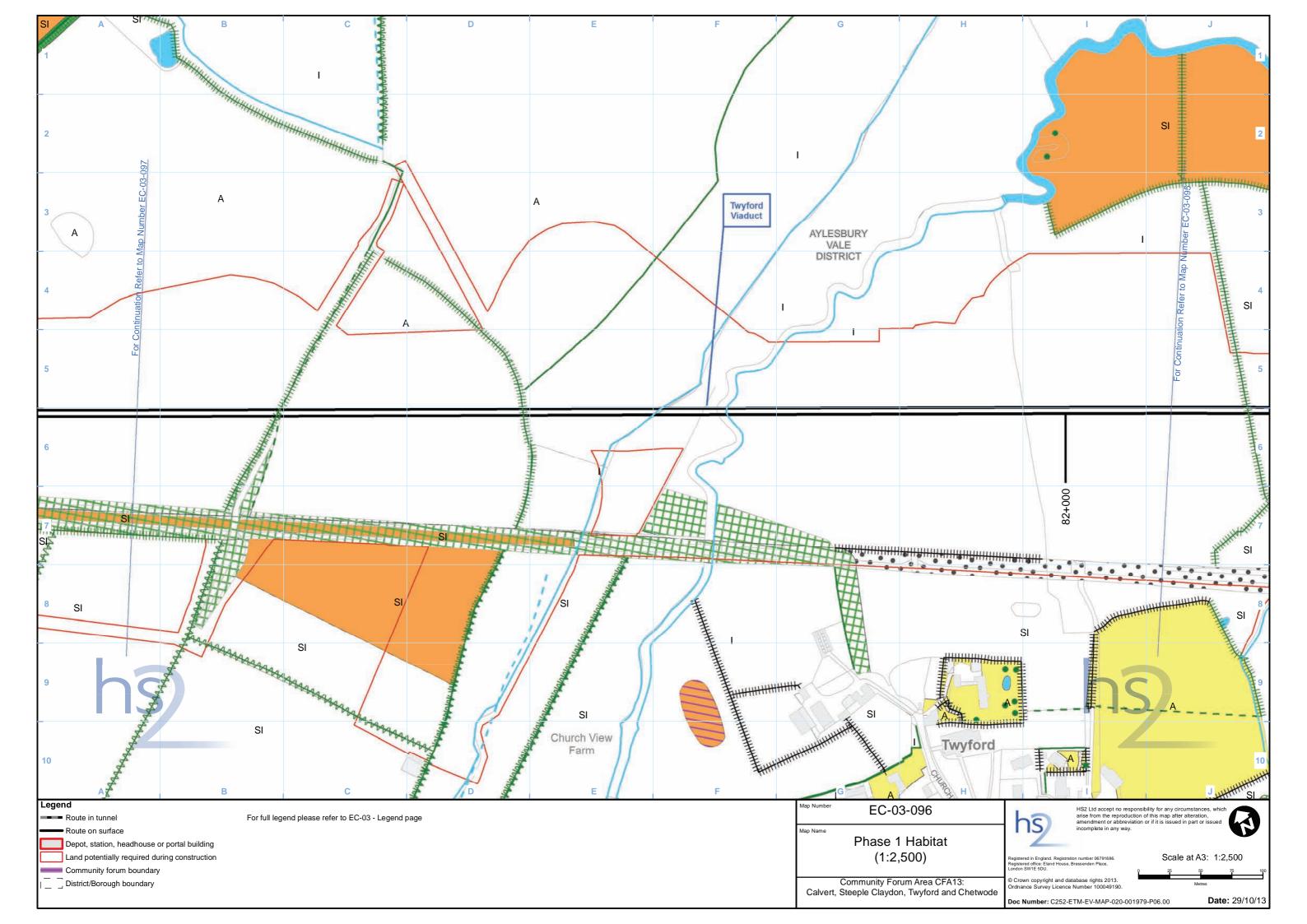


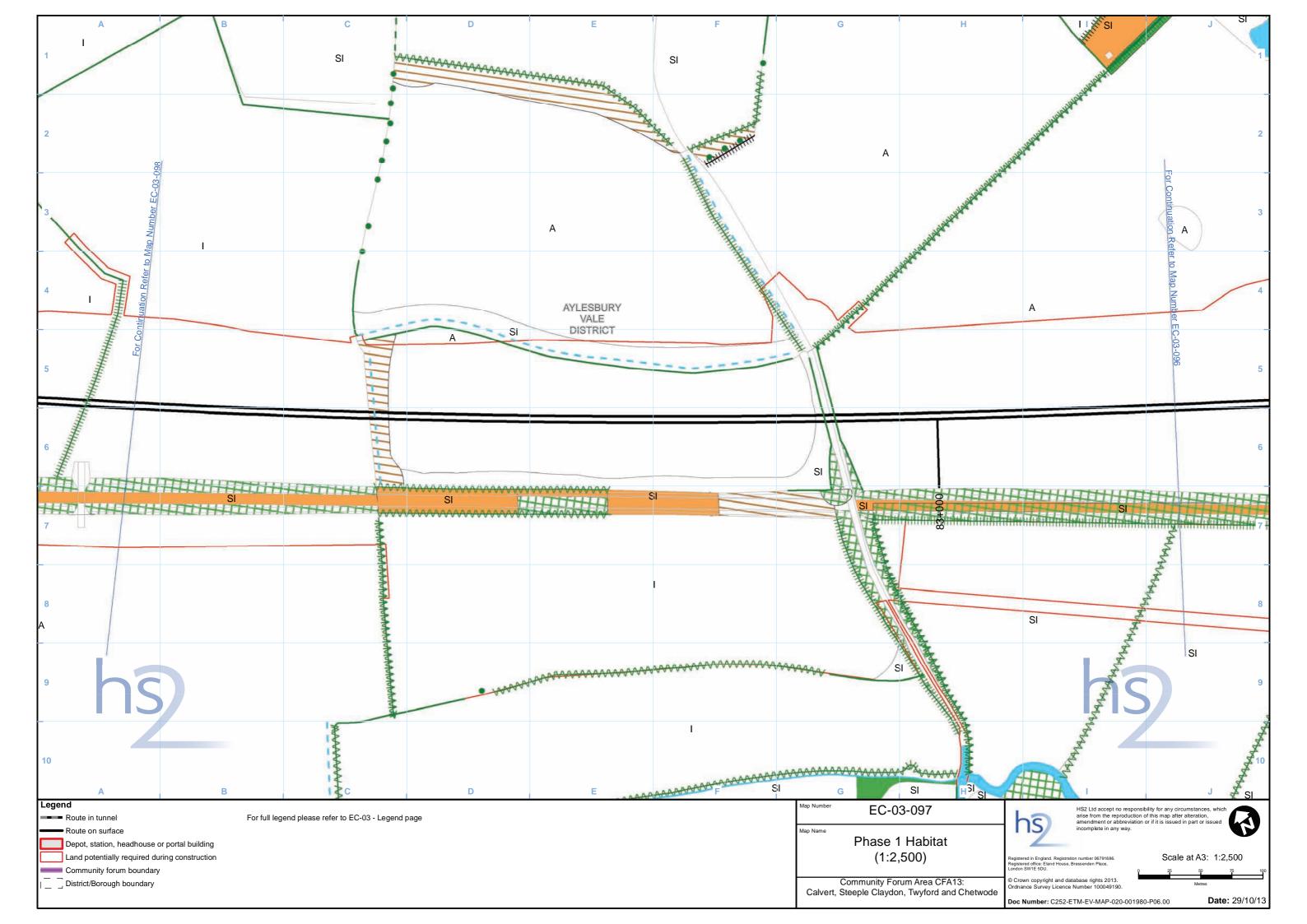


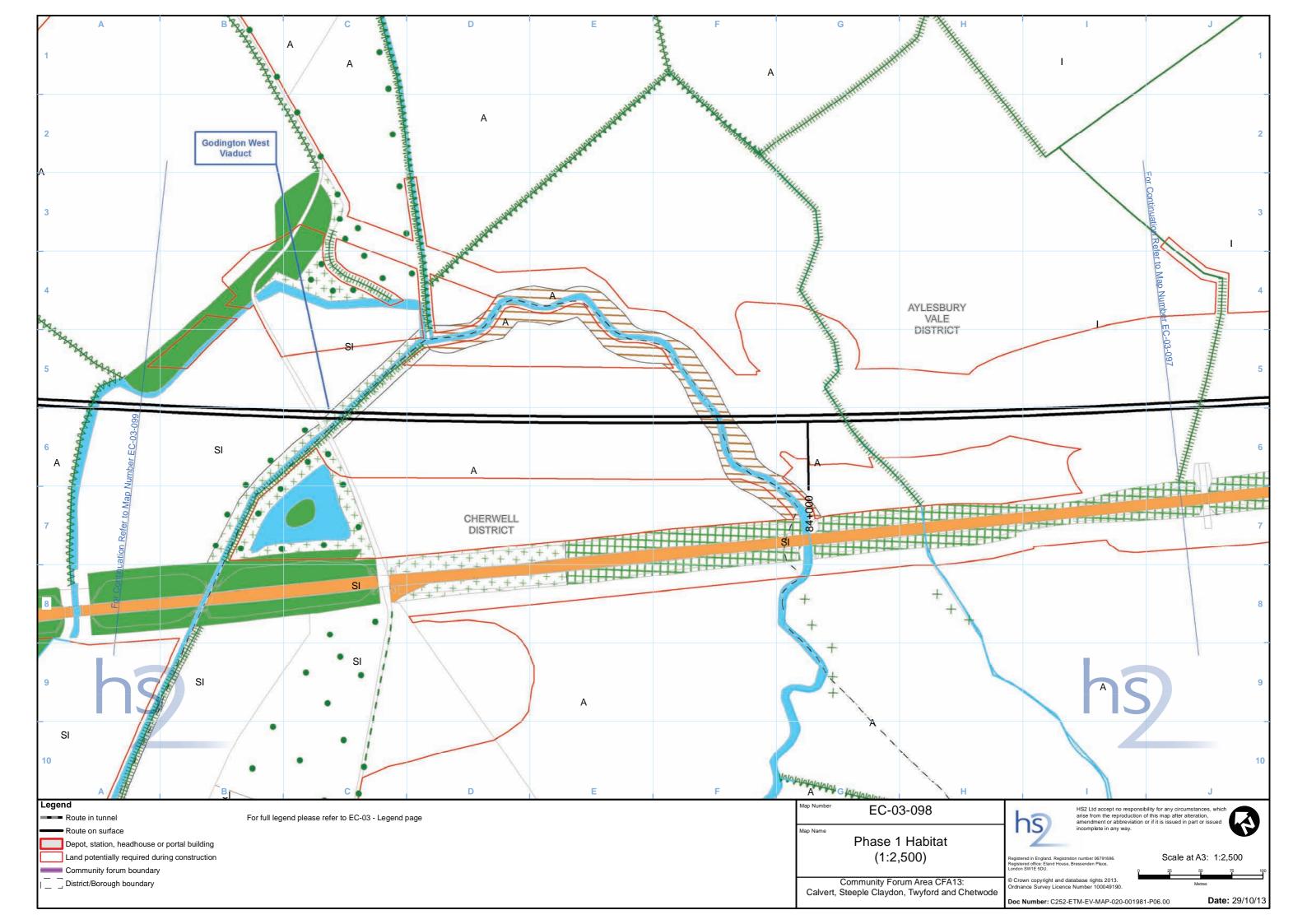


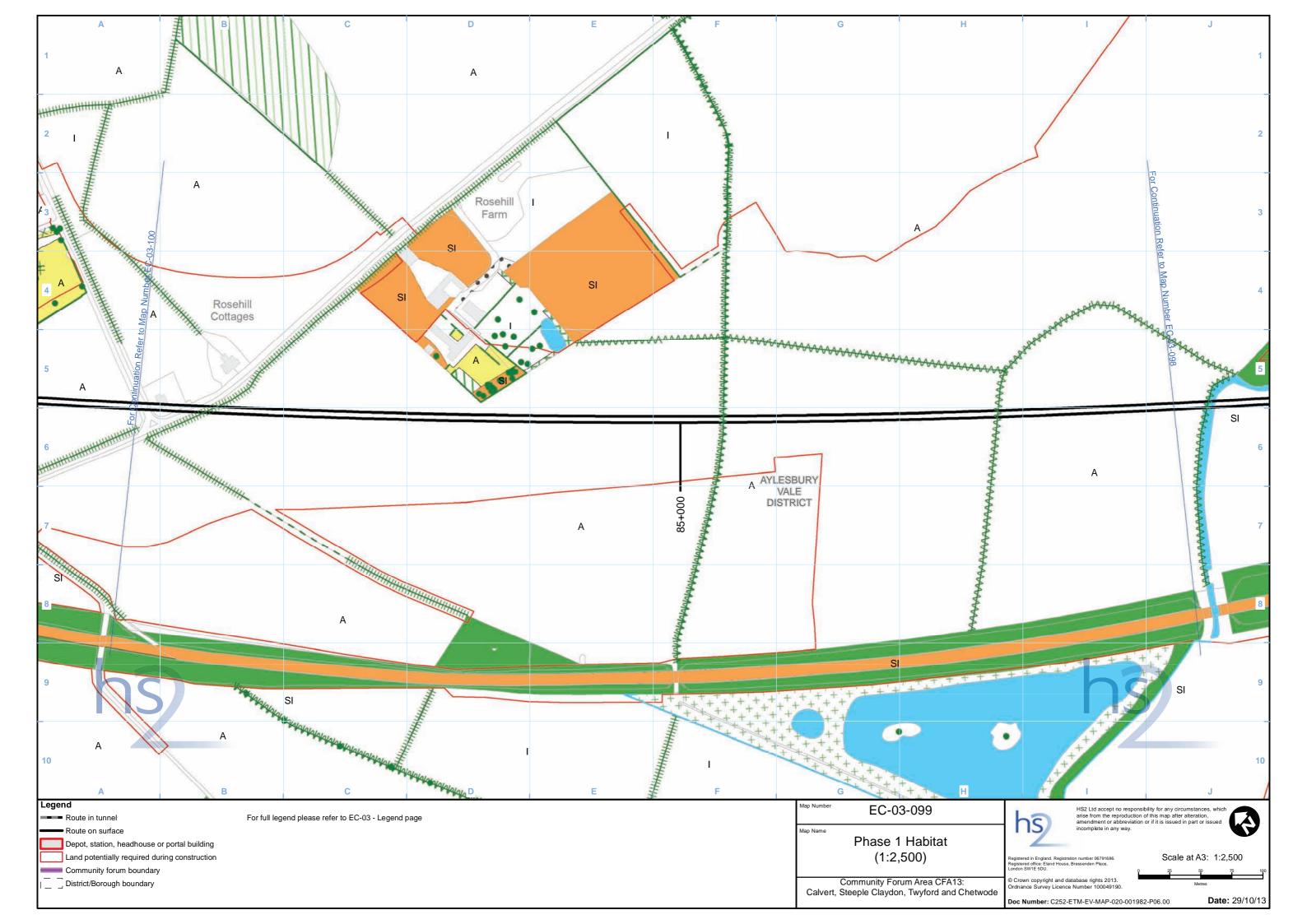


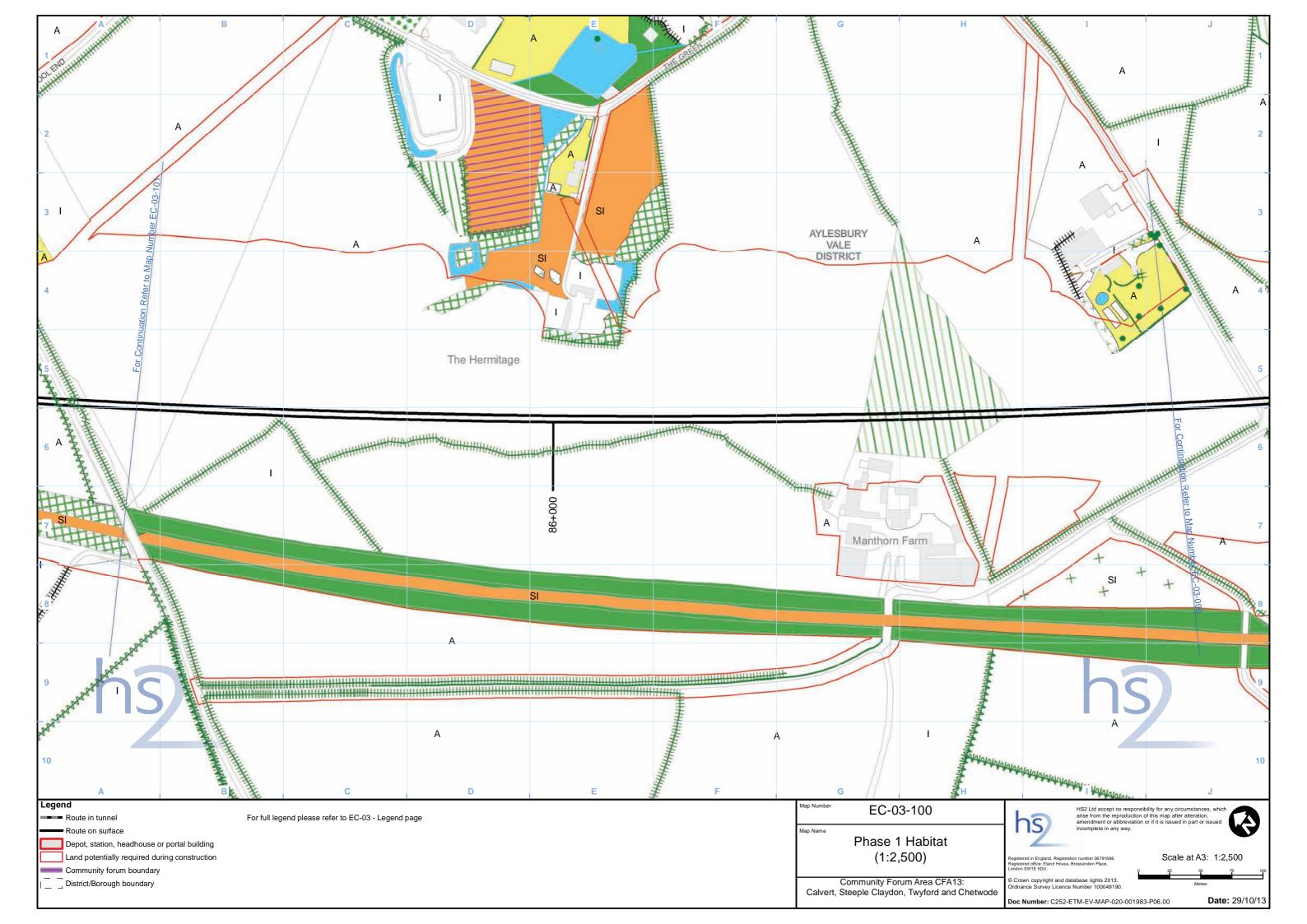


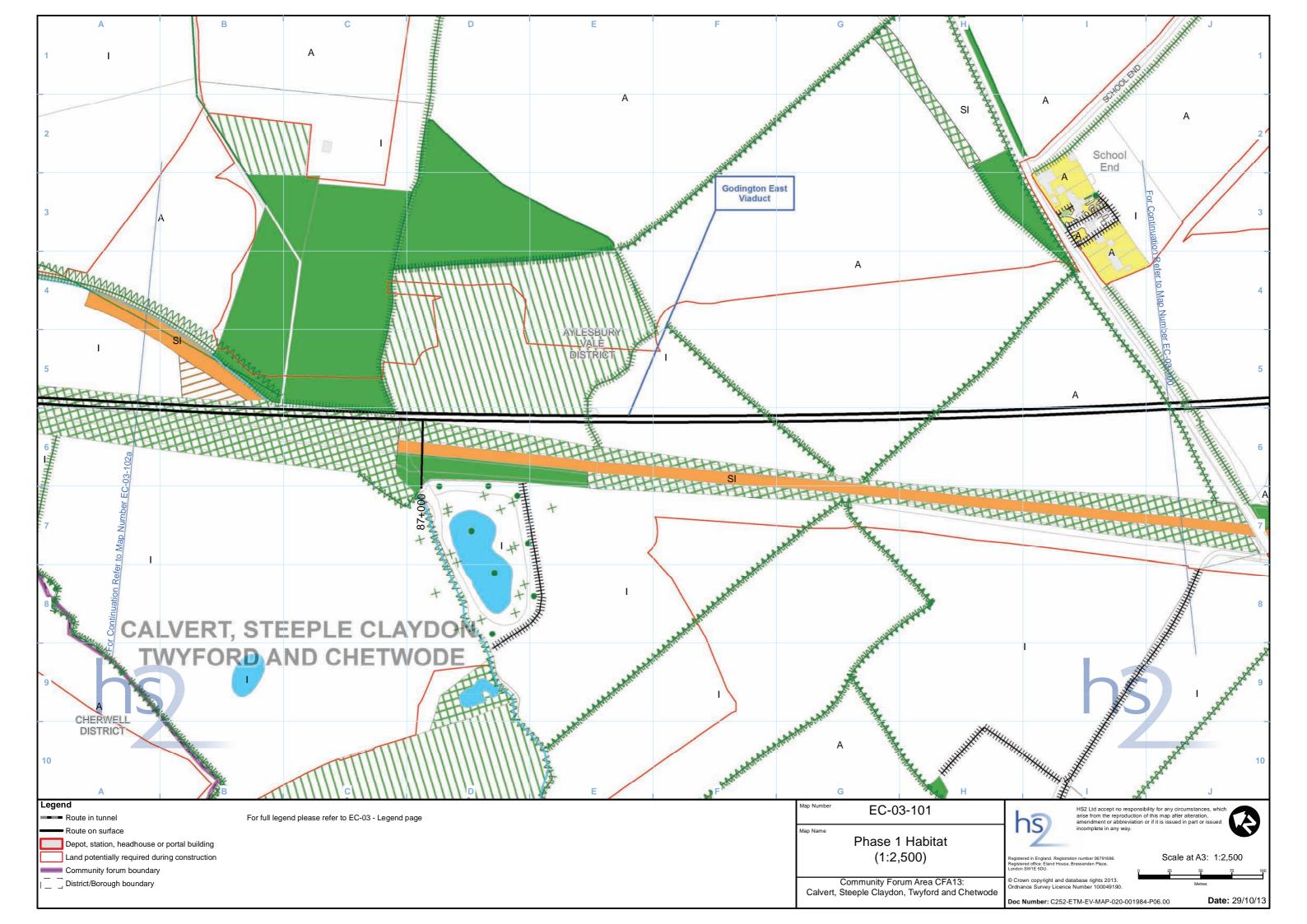


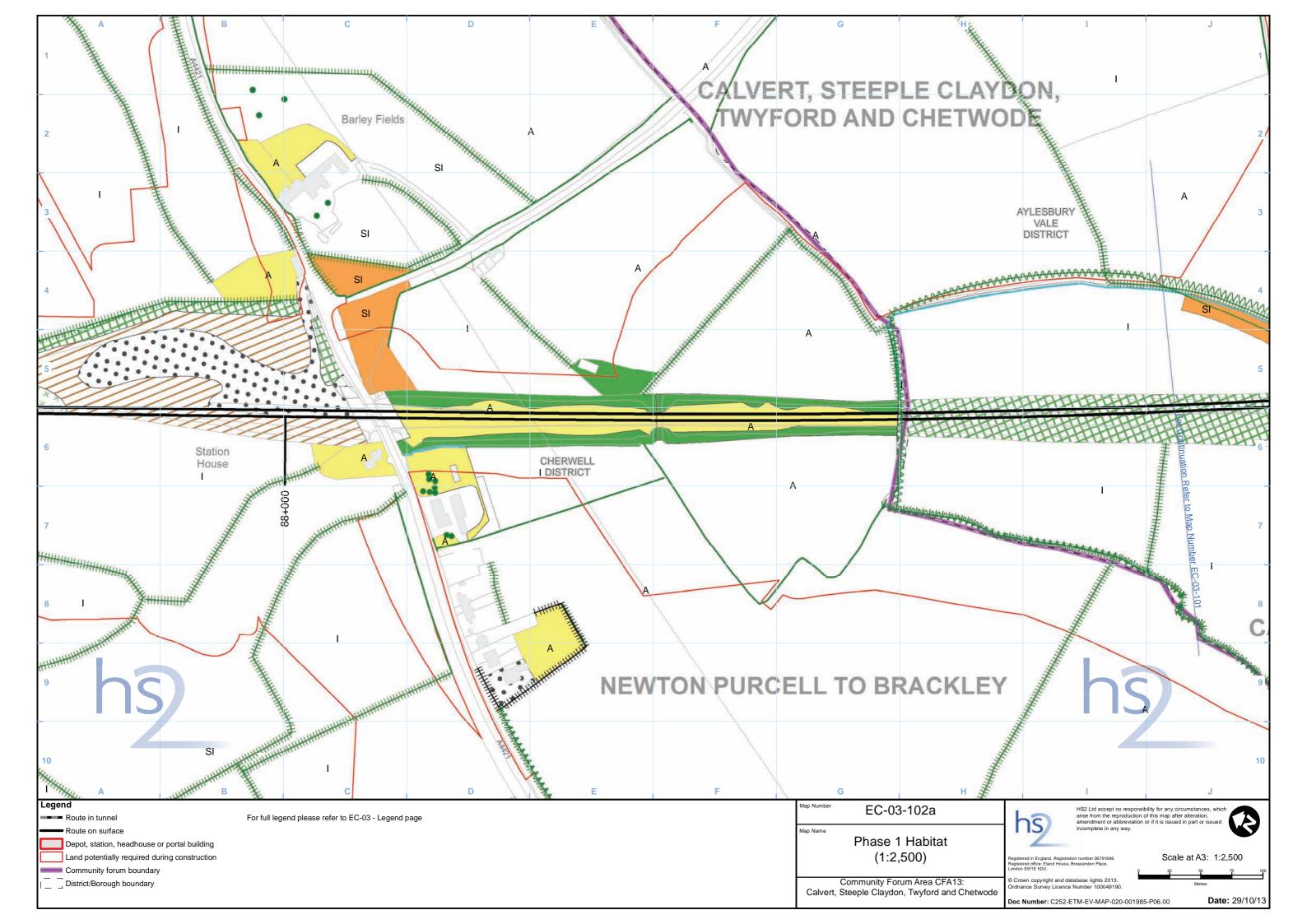










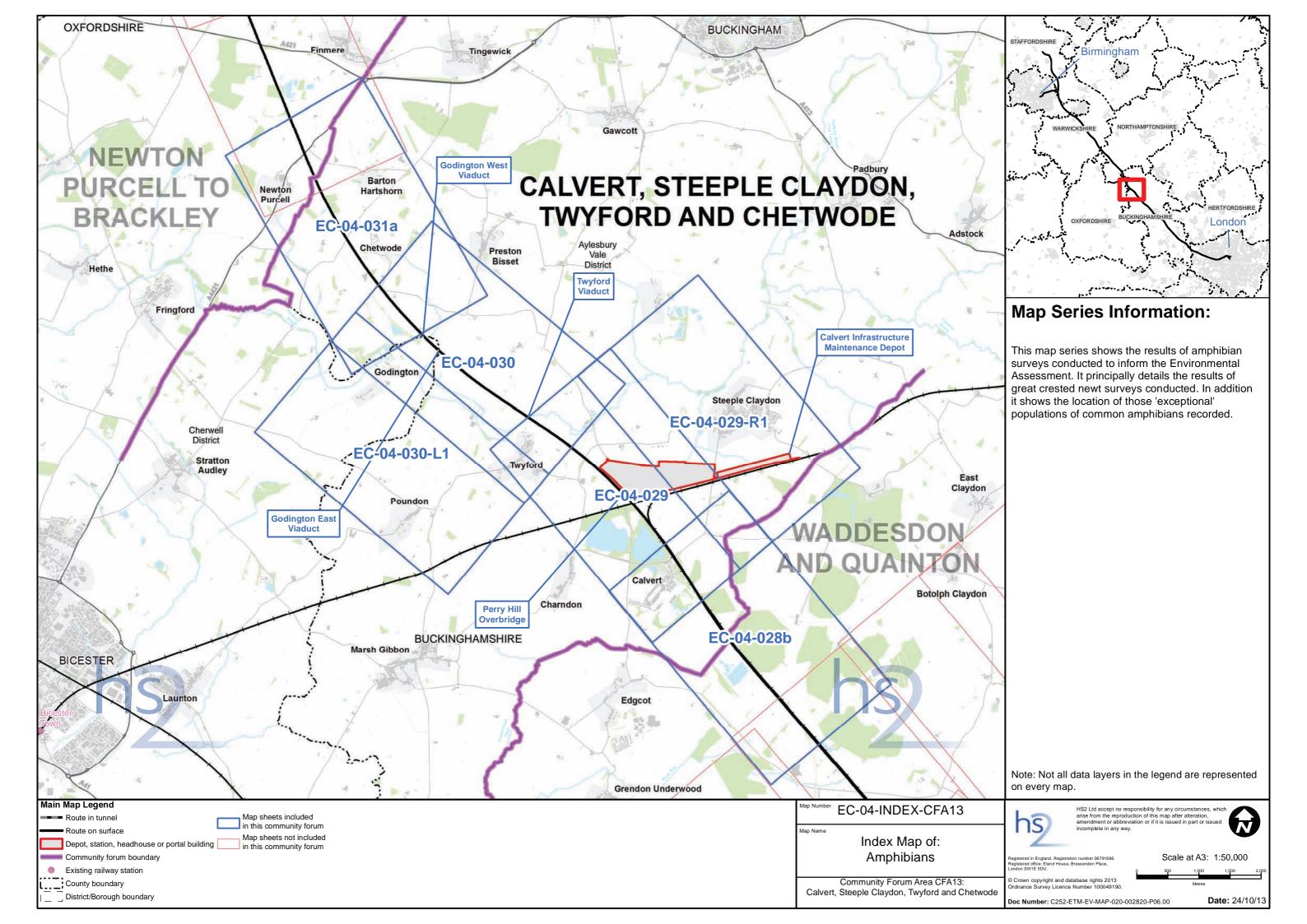


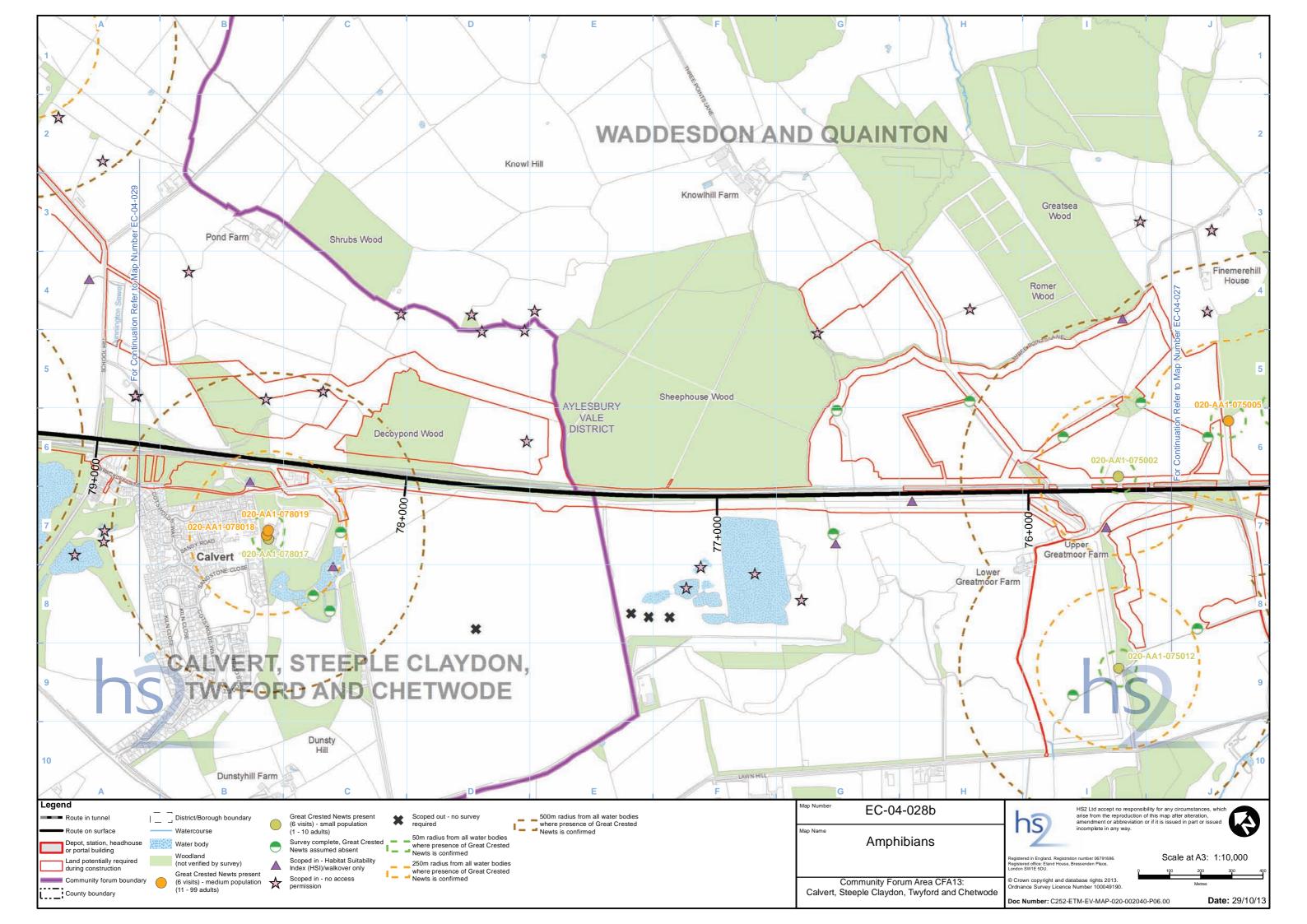
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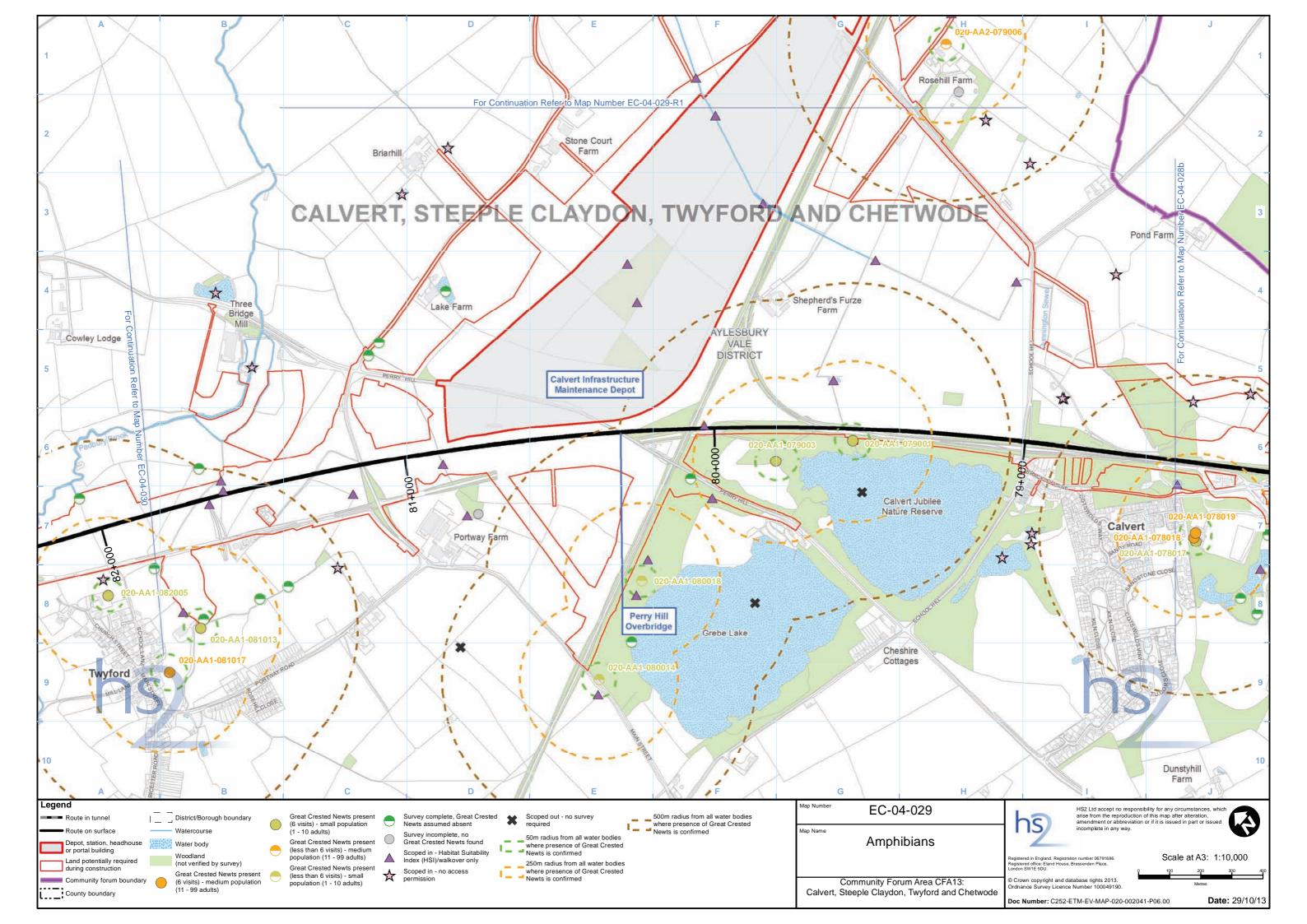


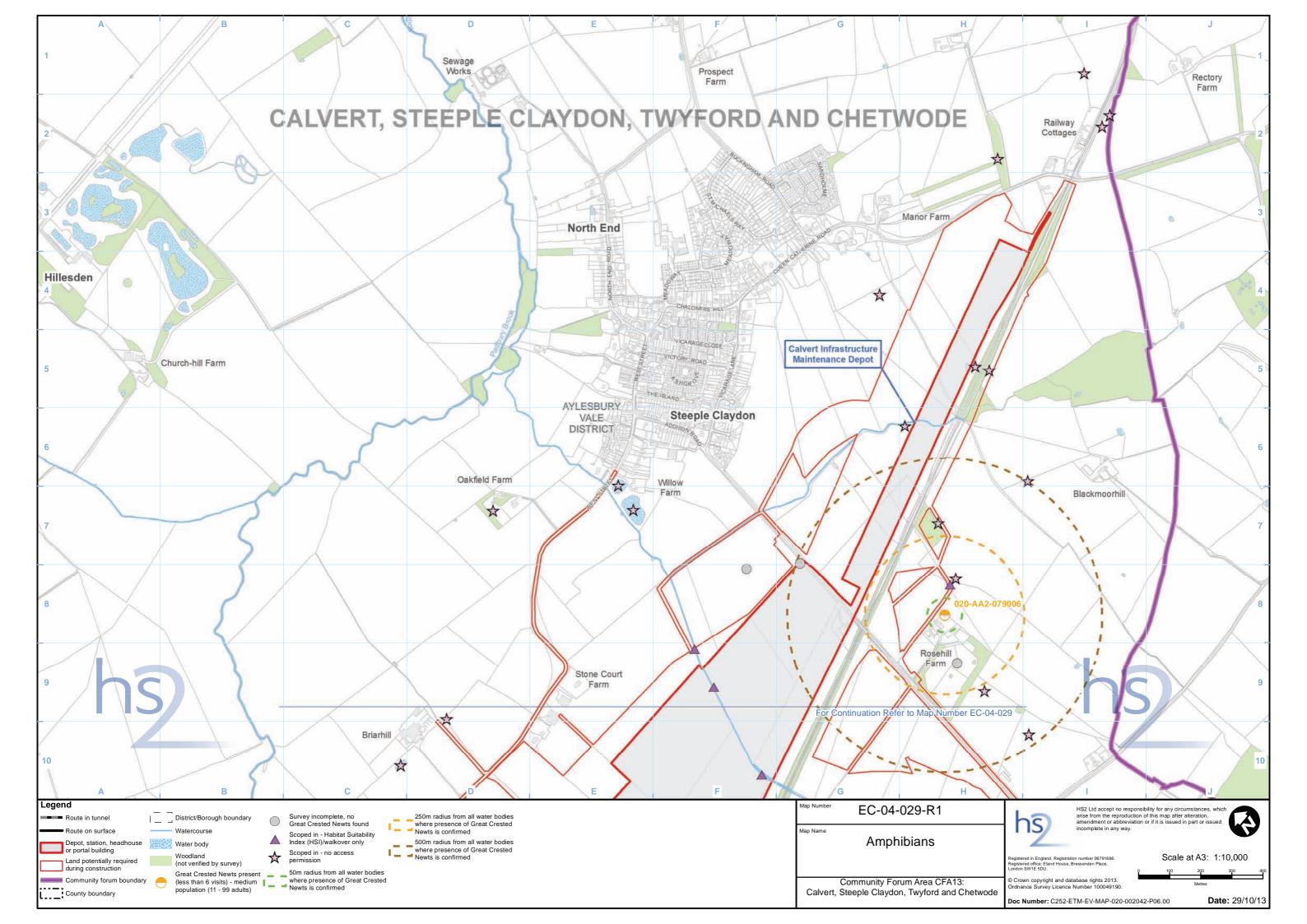
LONDON-WEST MIDLANDS ENVIRONMENTAL STATEMENT

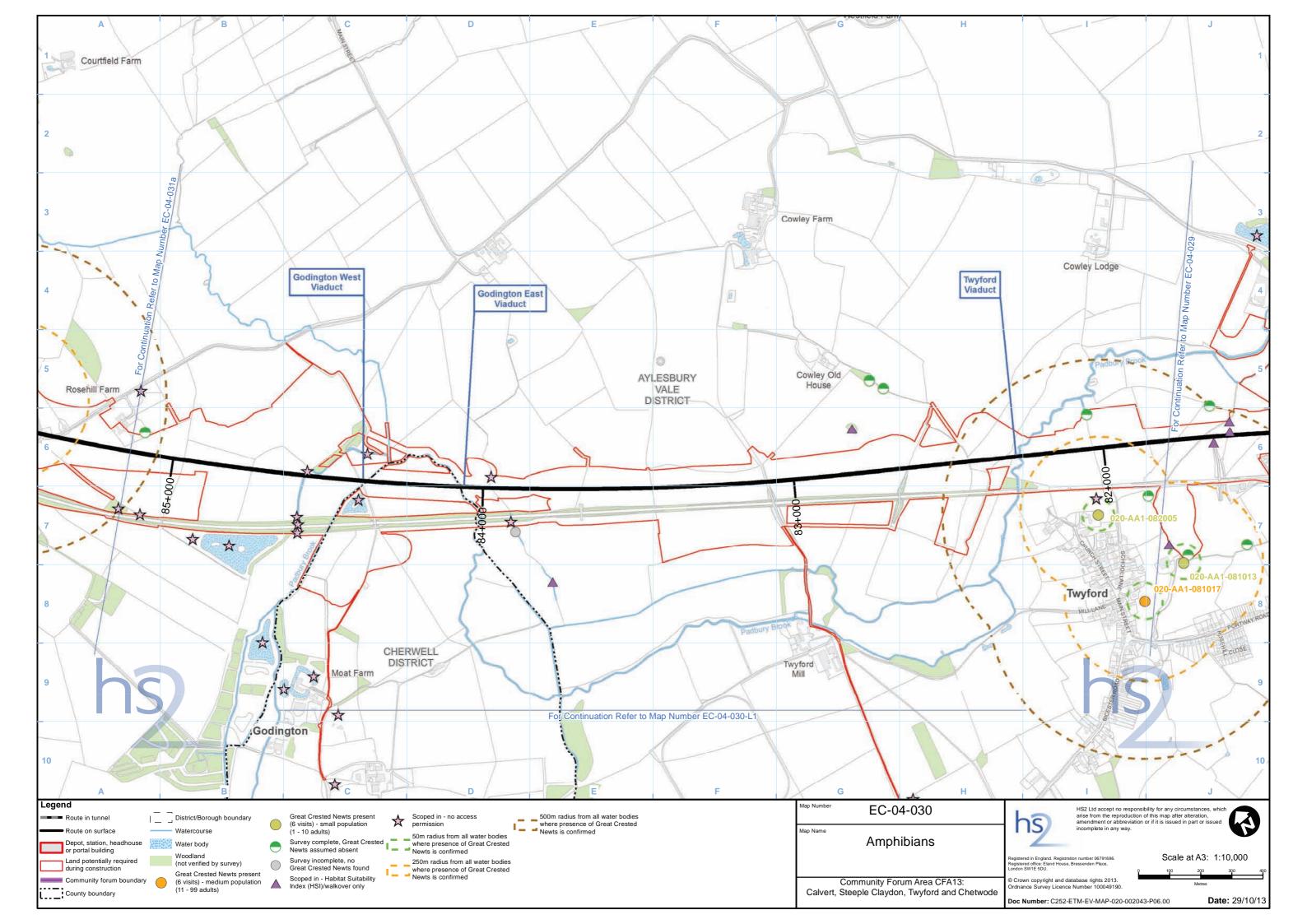
EC-04 – Amphibians

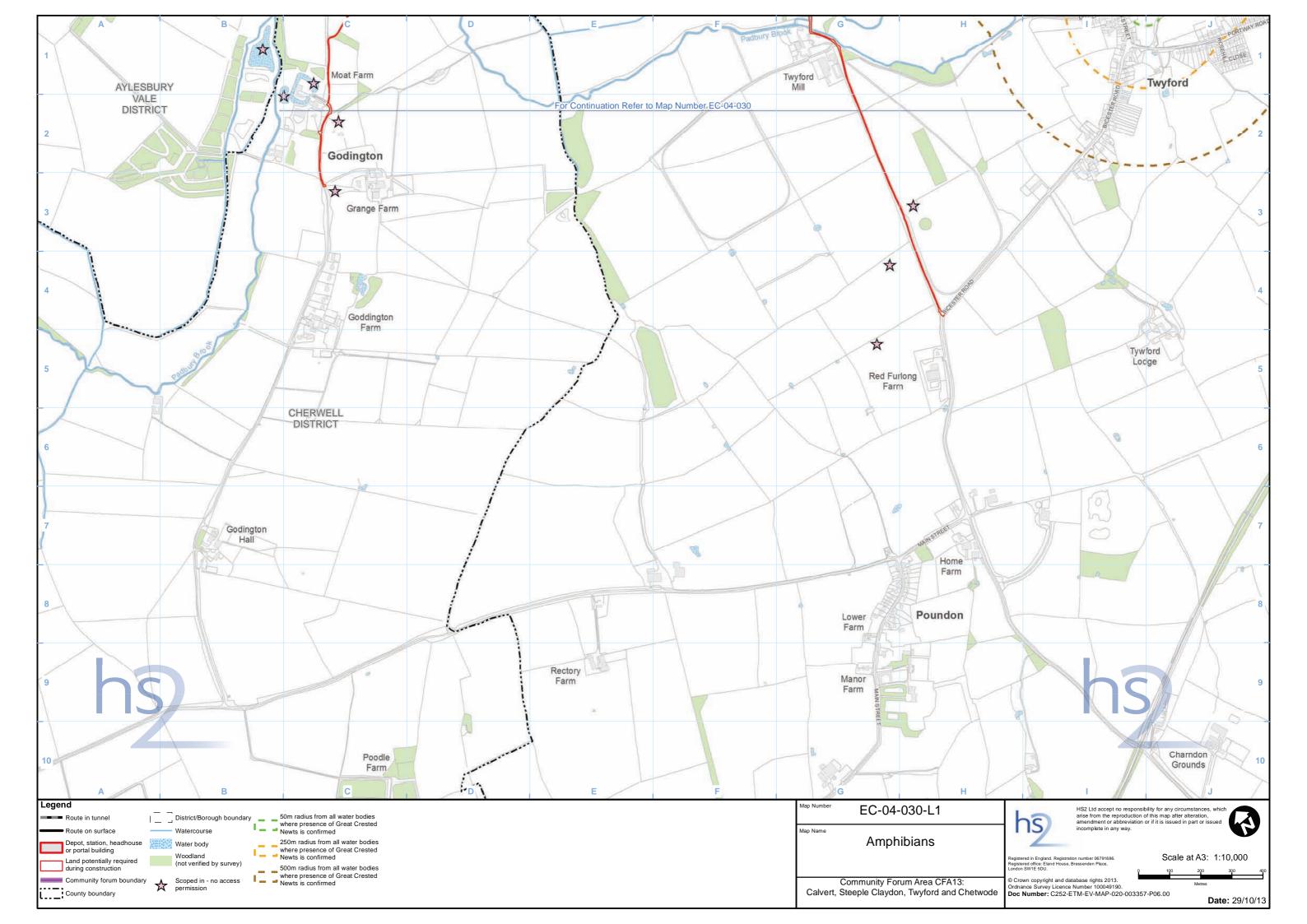


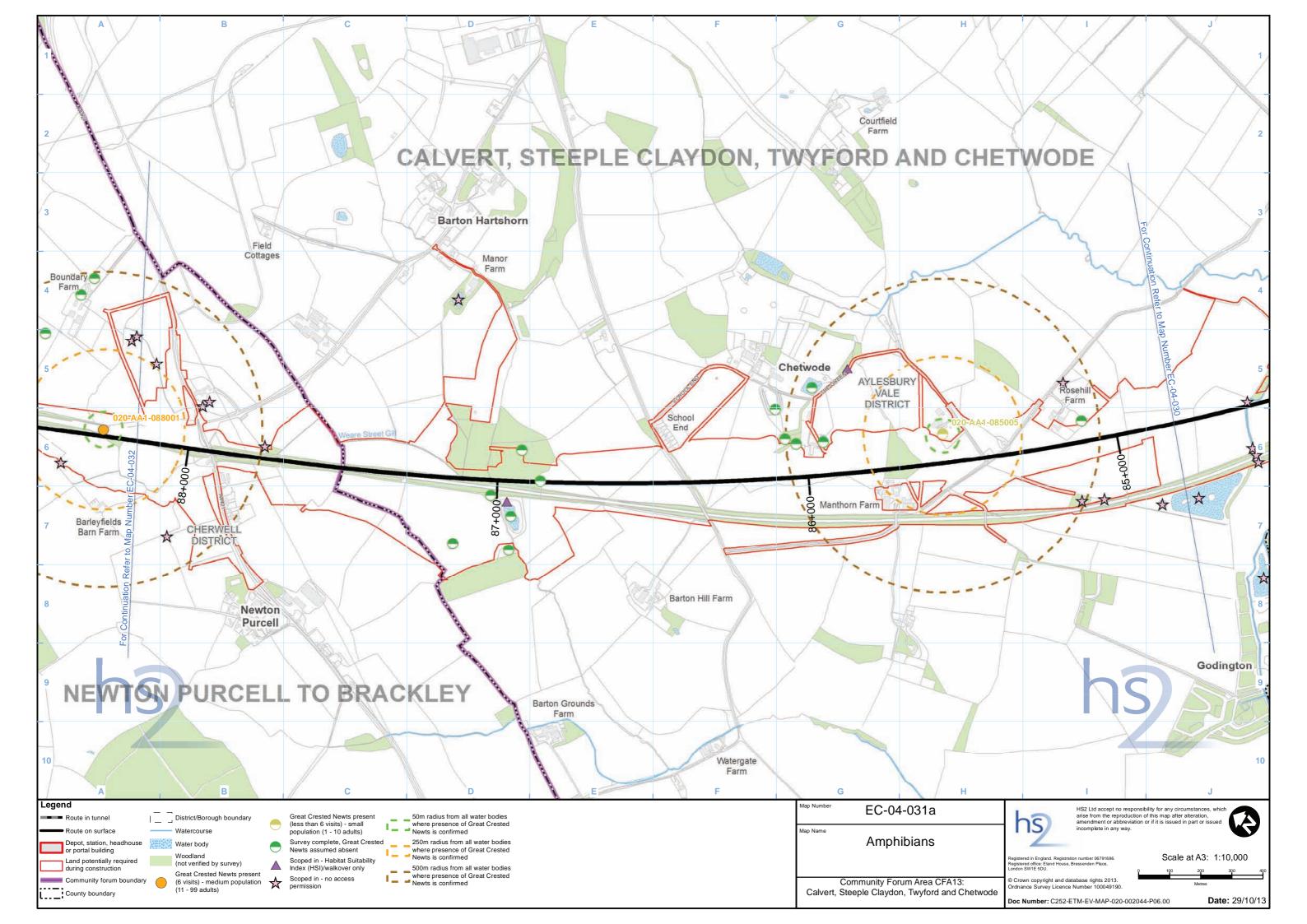








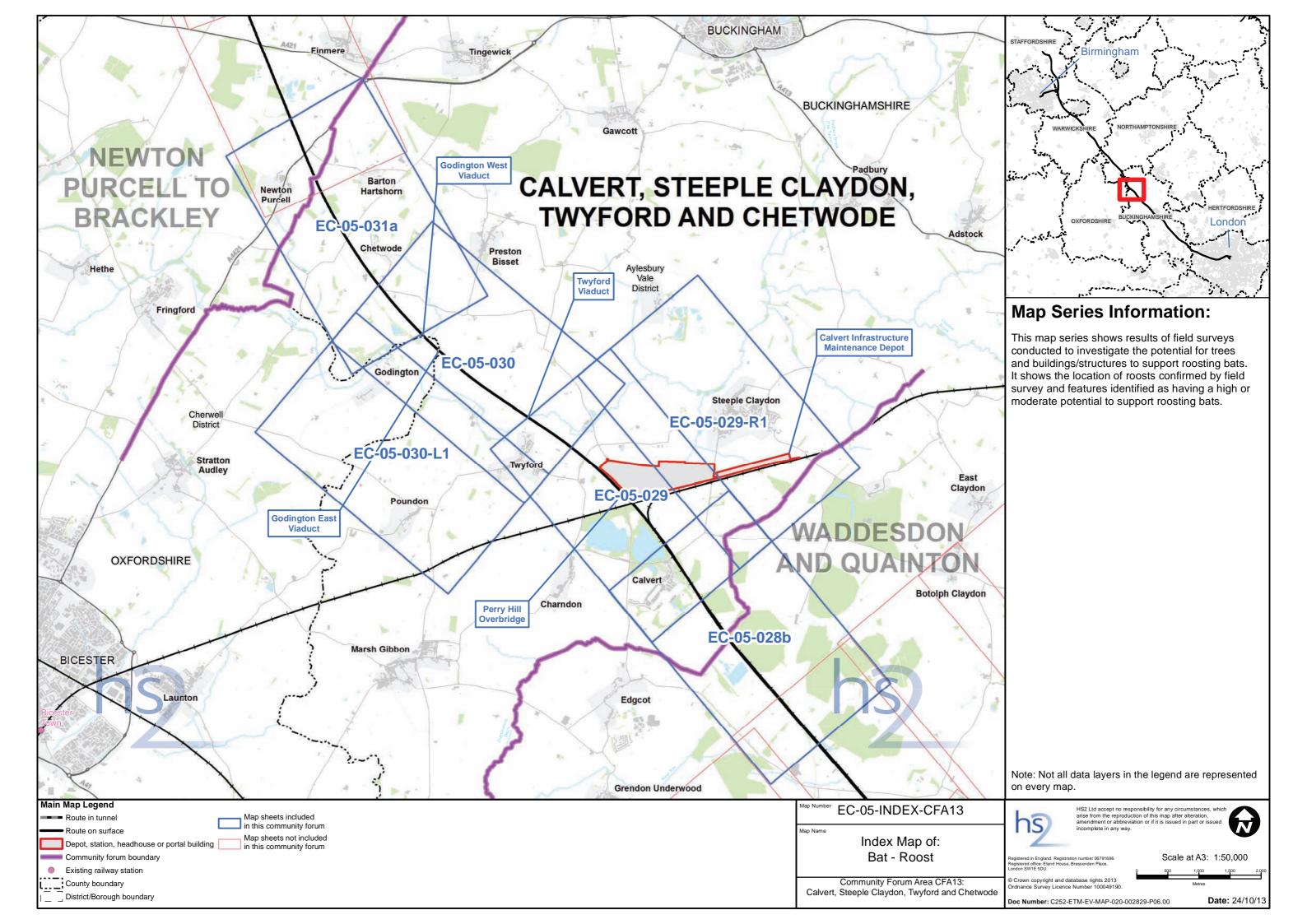


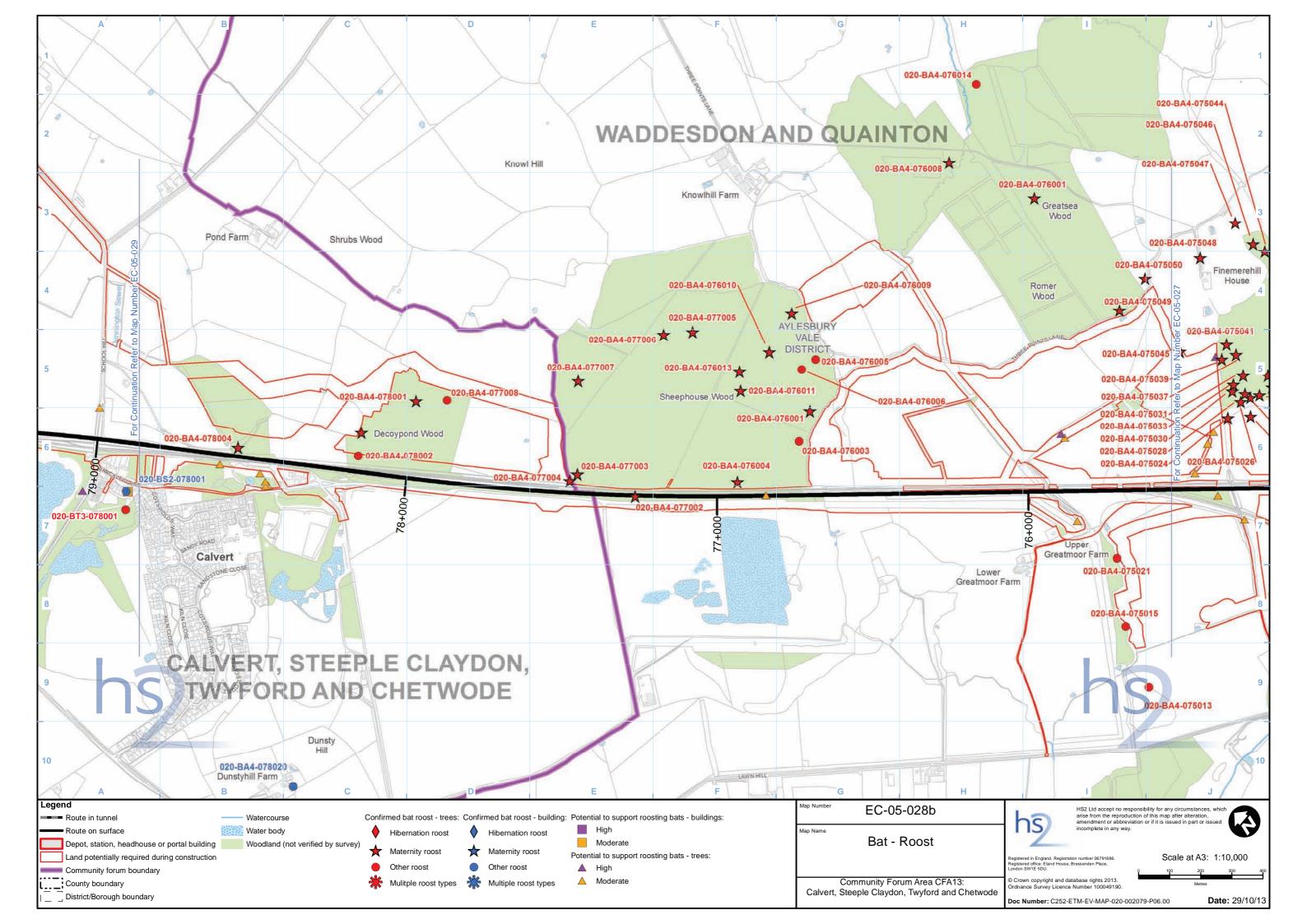


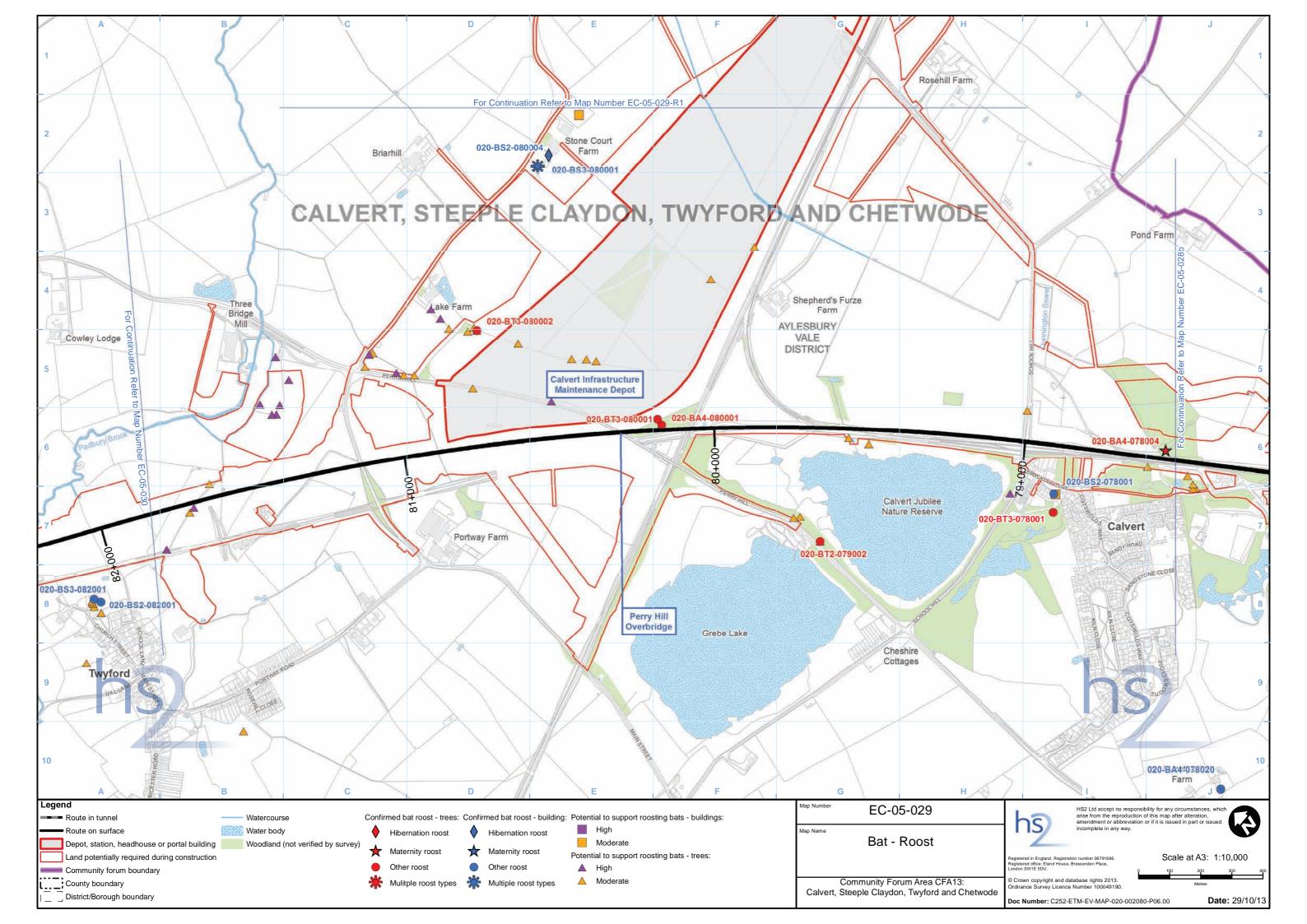


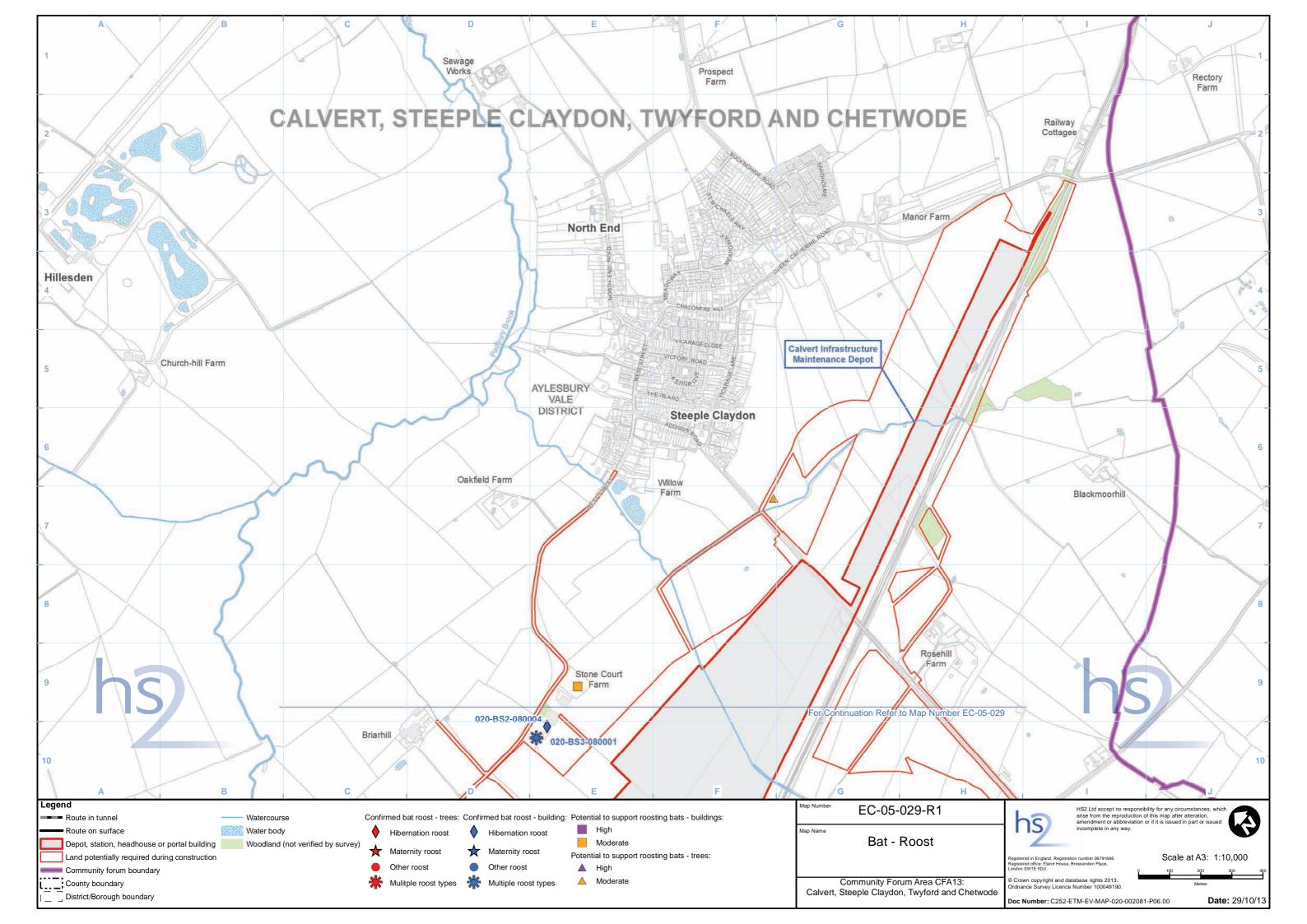
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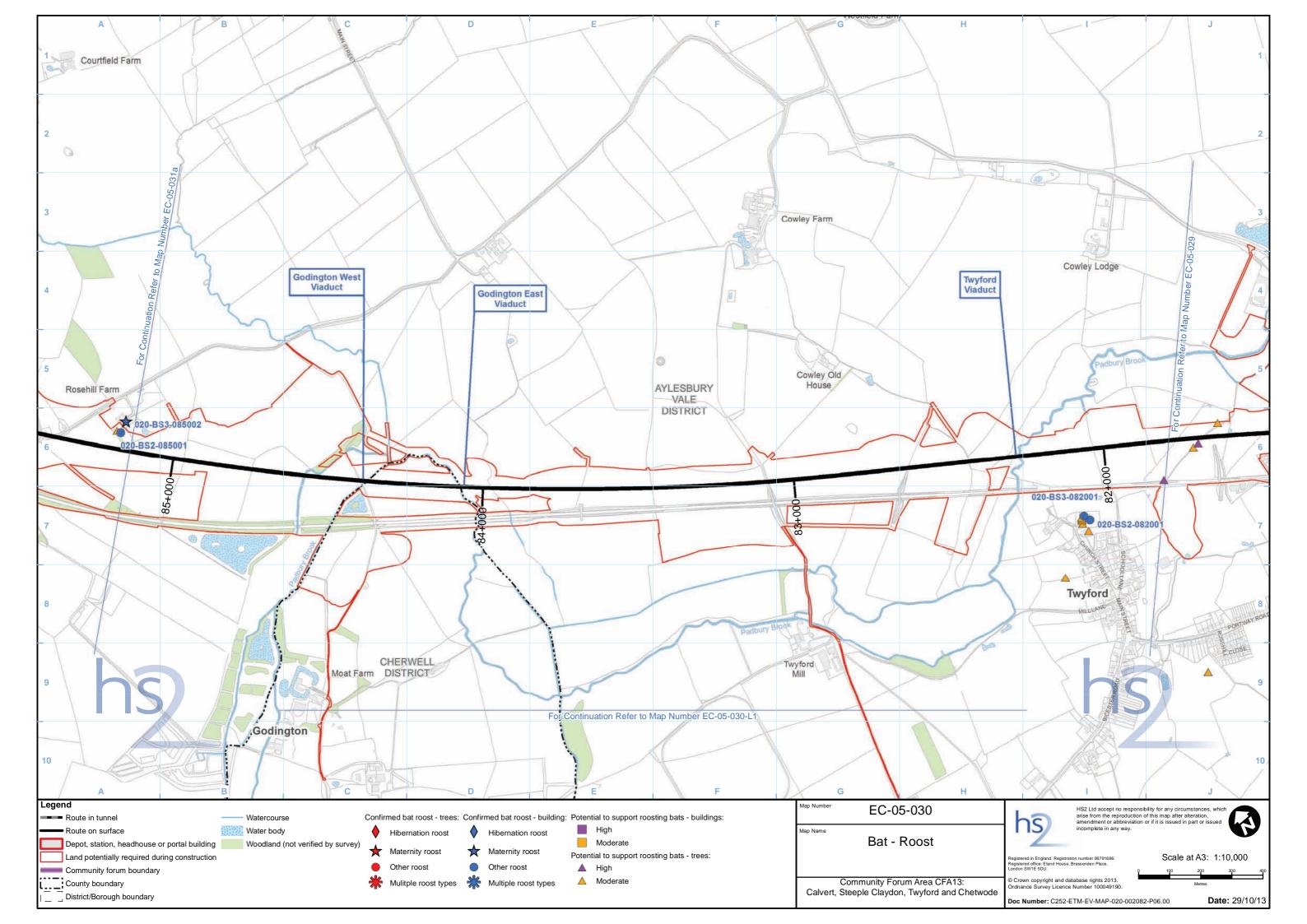
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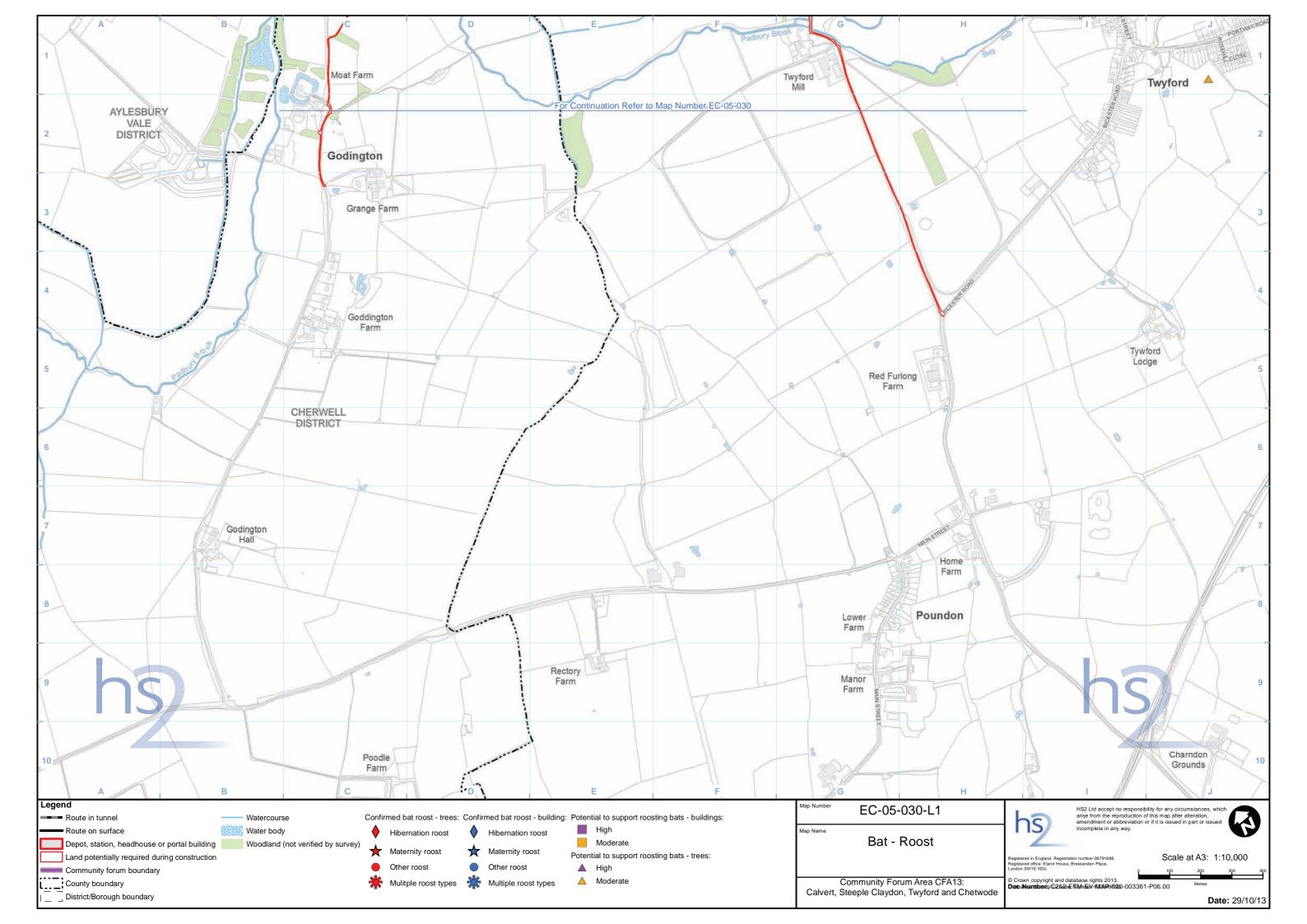


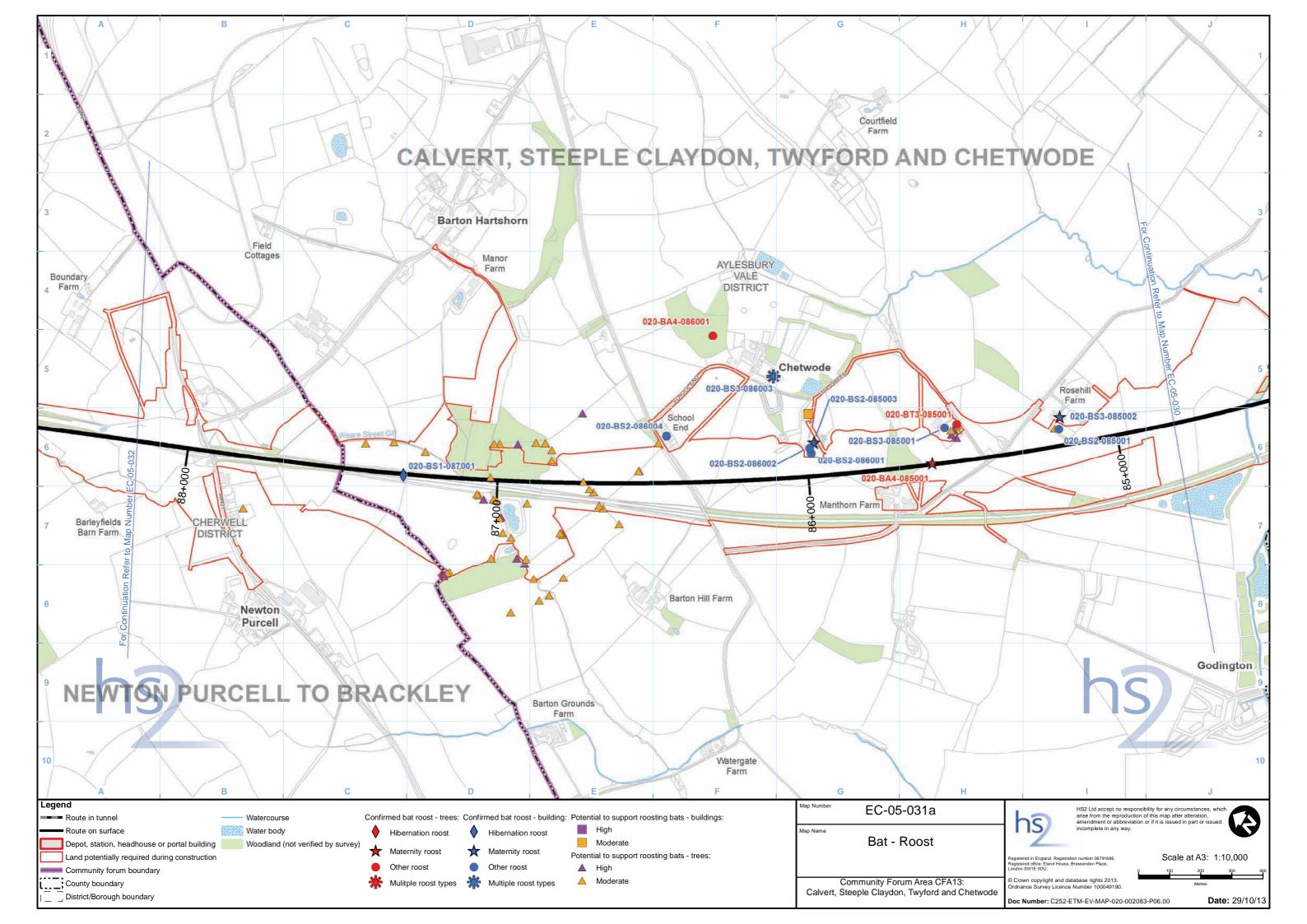








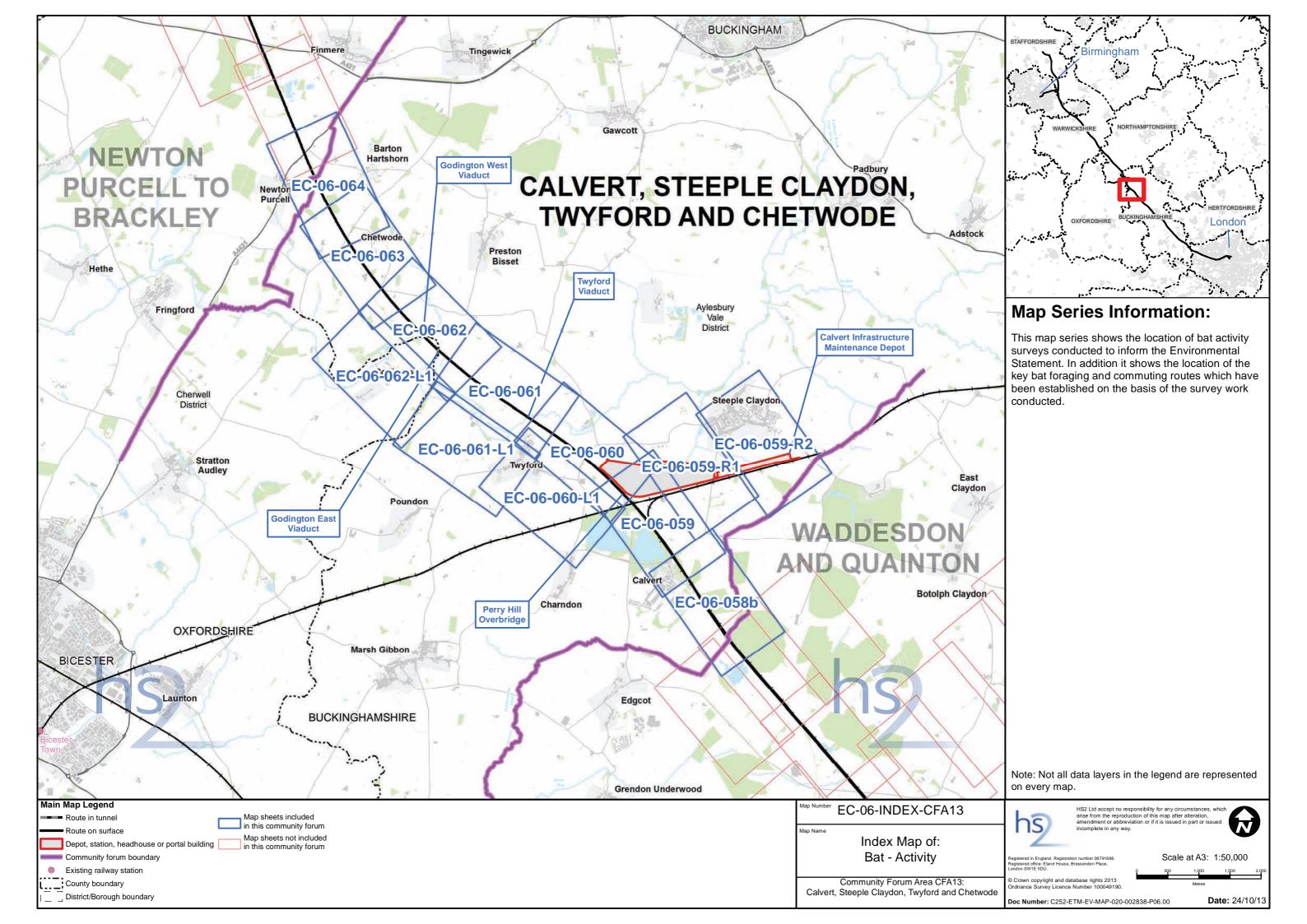


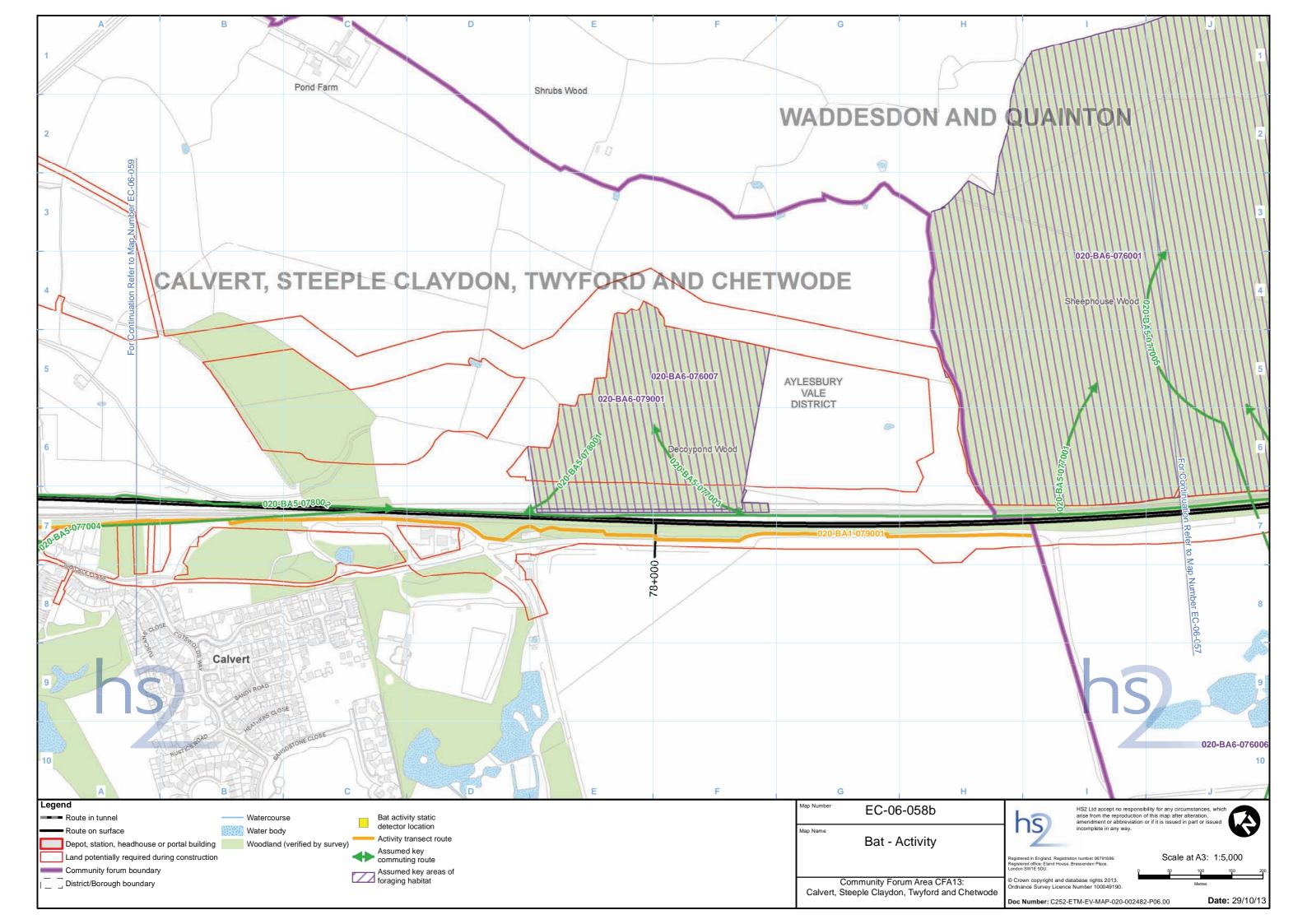


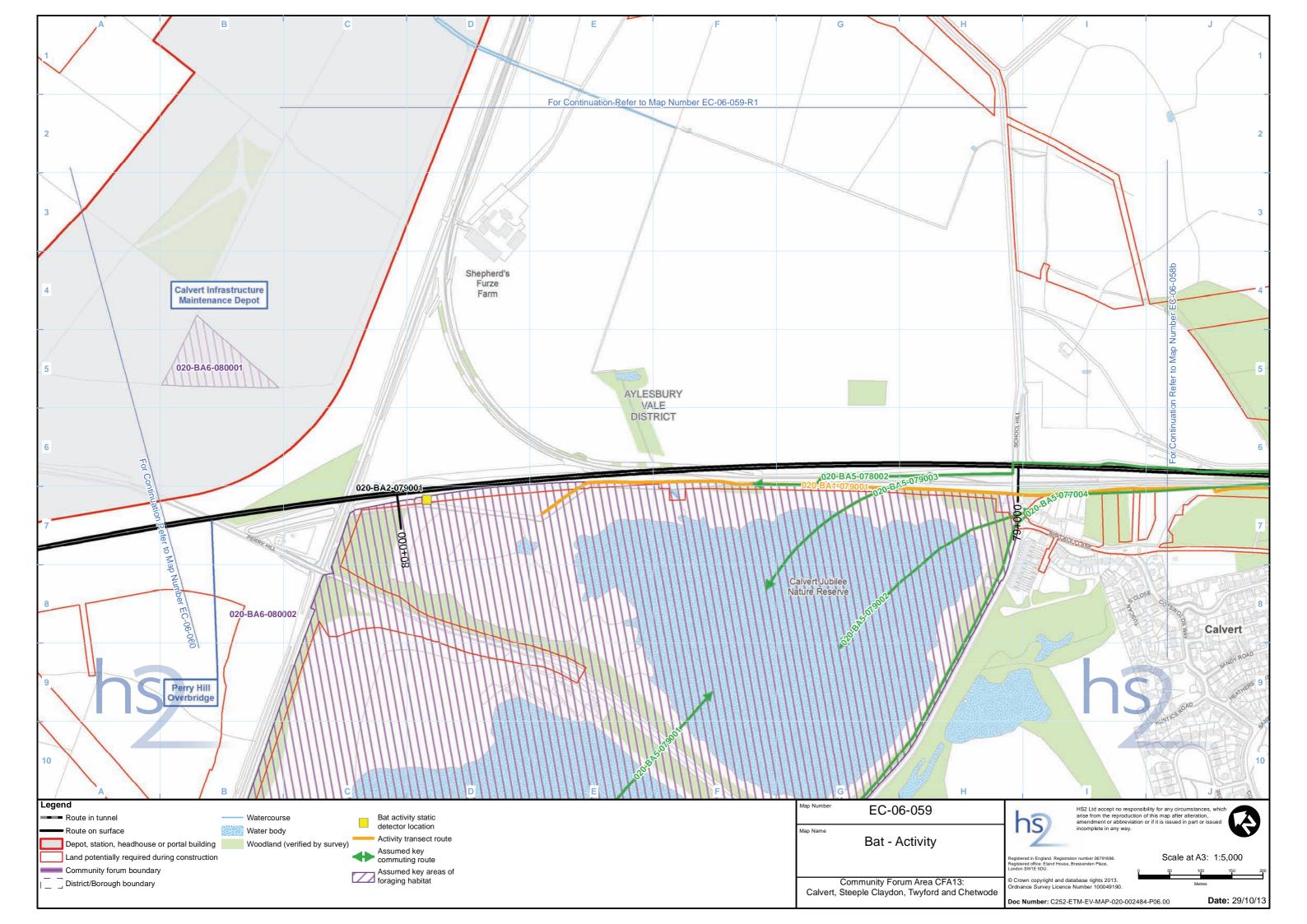


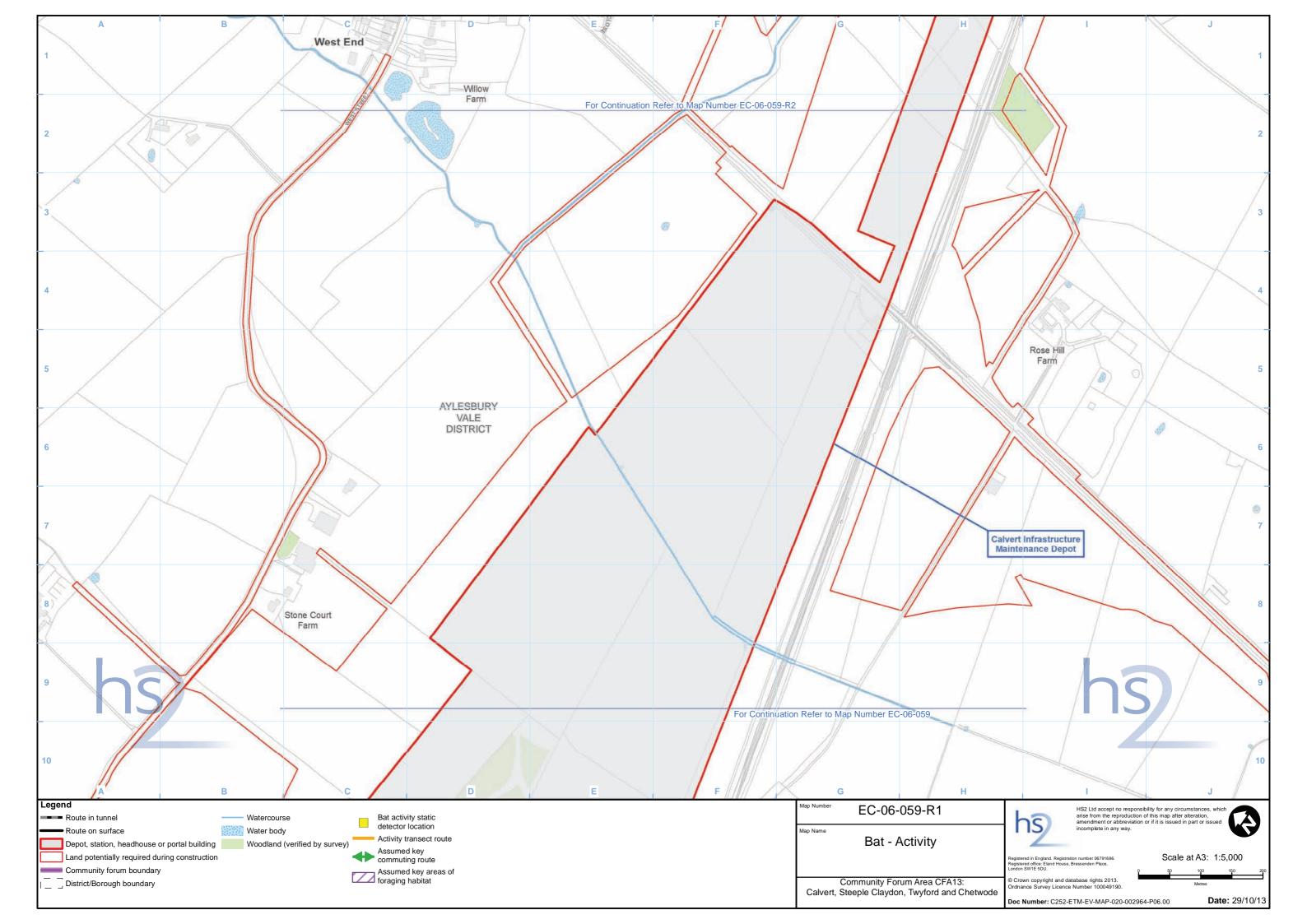
LONDON-WEST MIDLANDS ENVIRONMENTAL STATEMENT

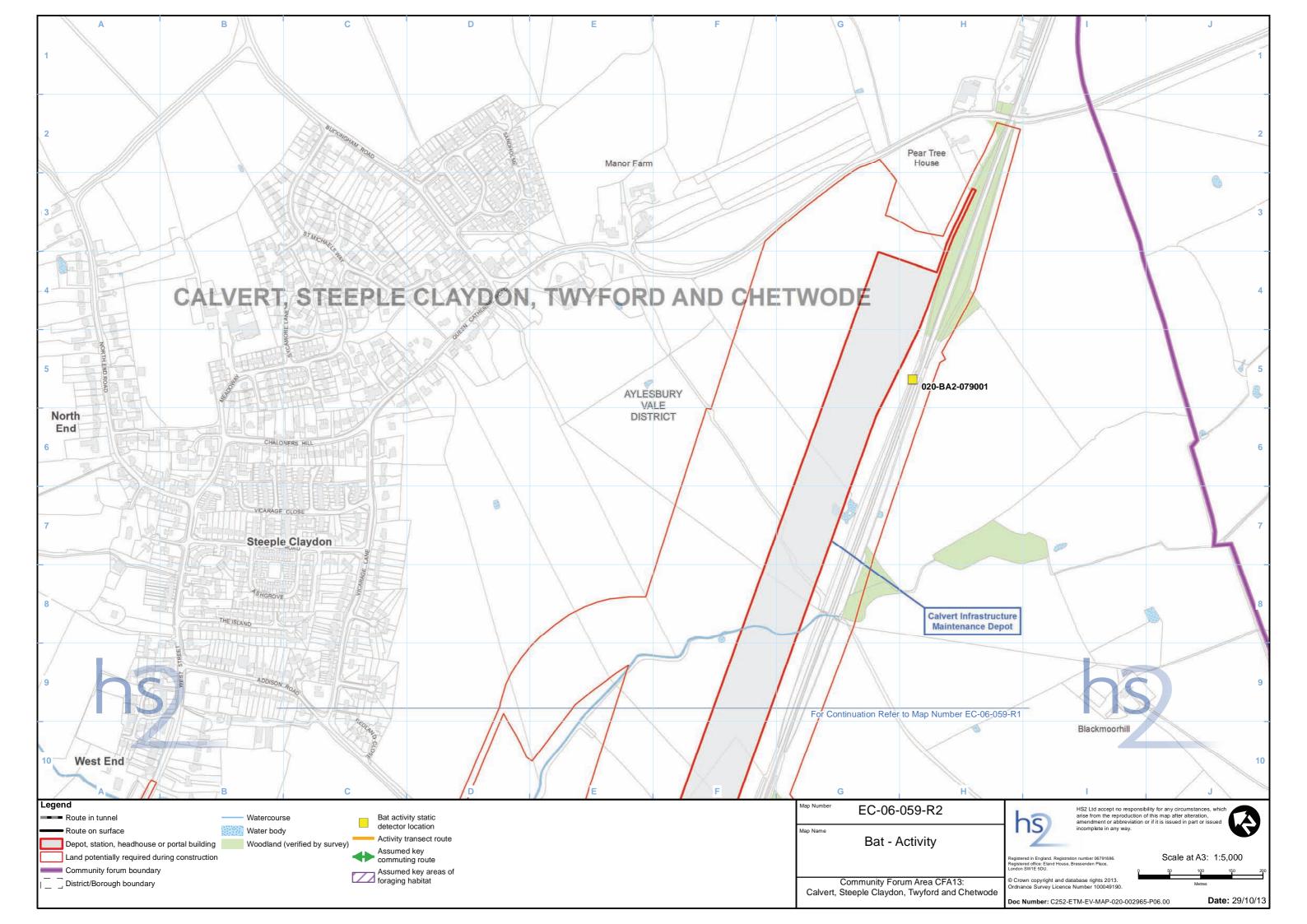
EC-o6 – Bats – Activity

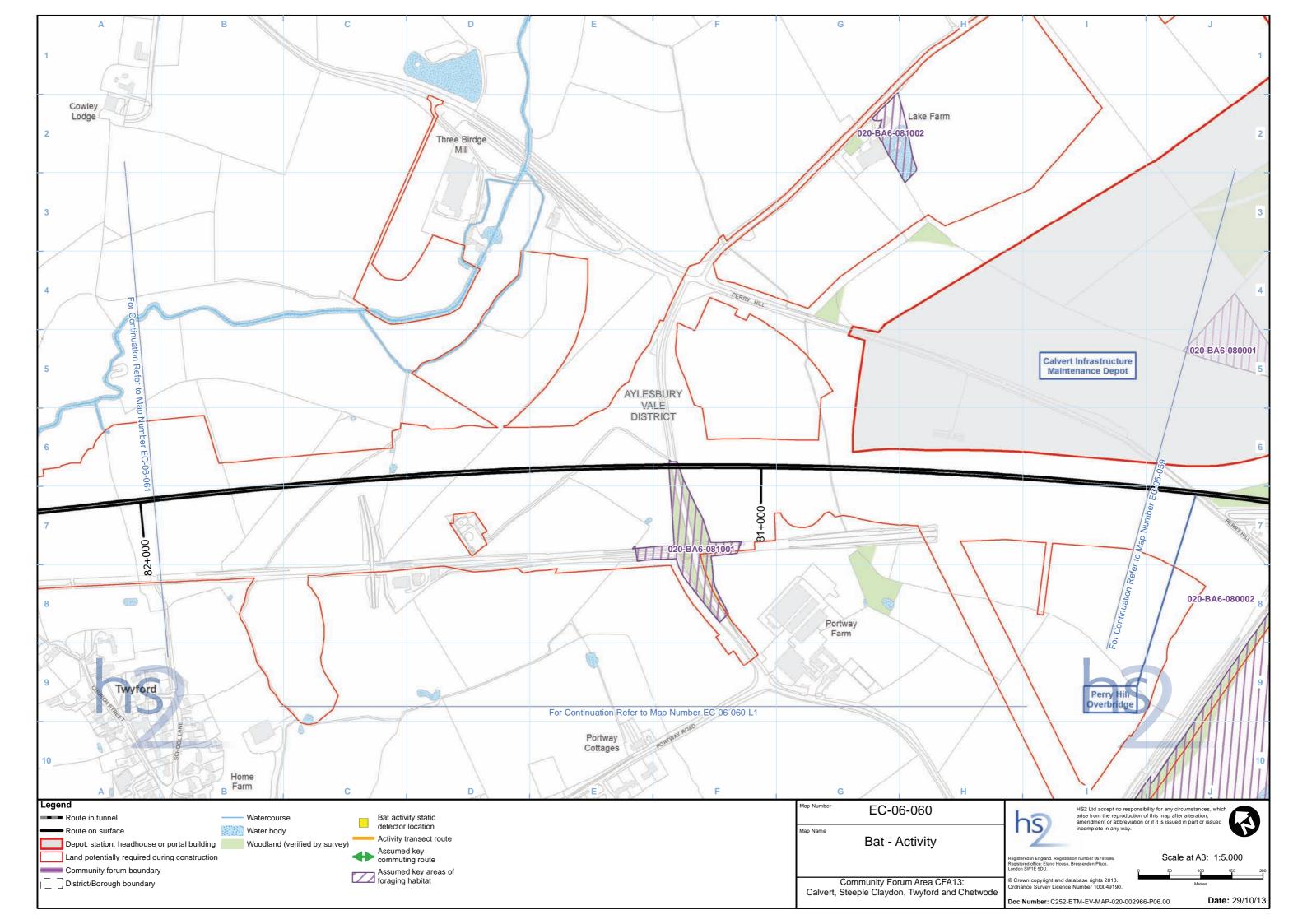


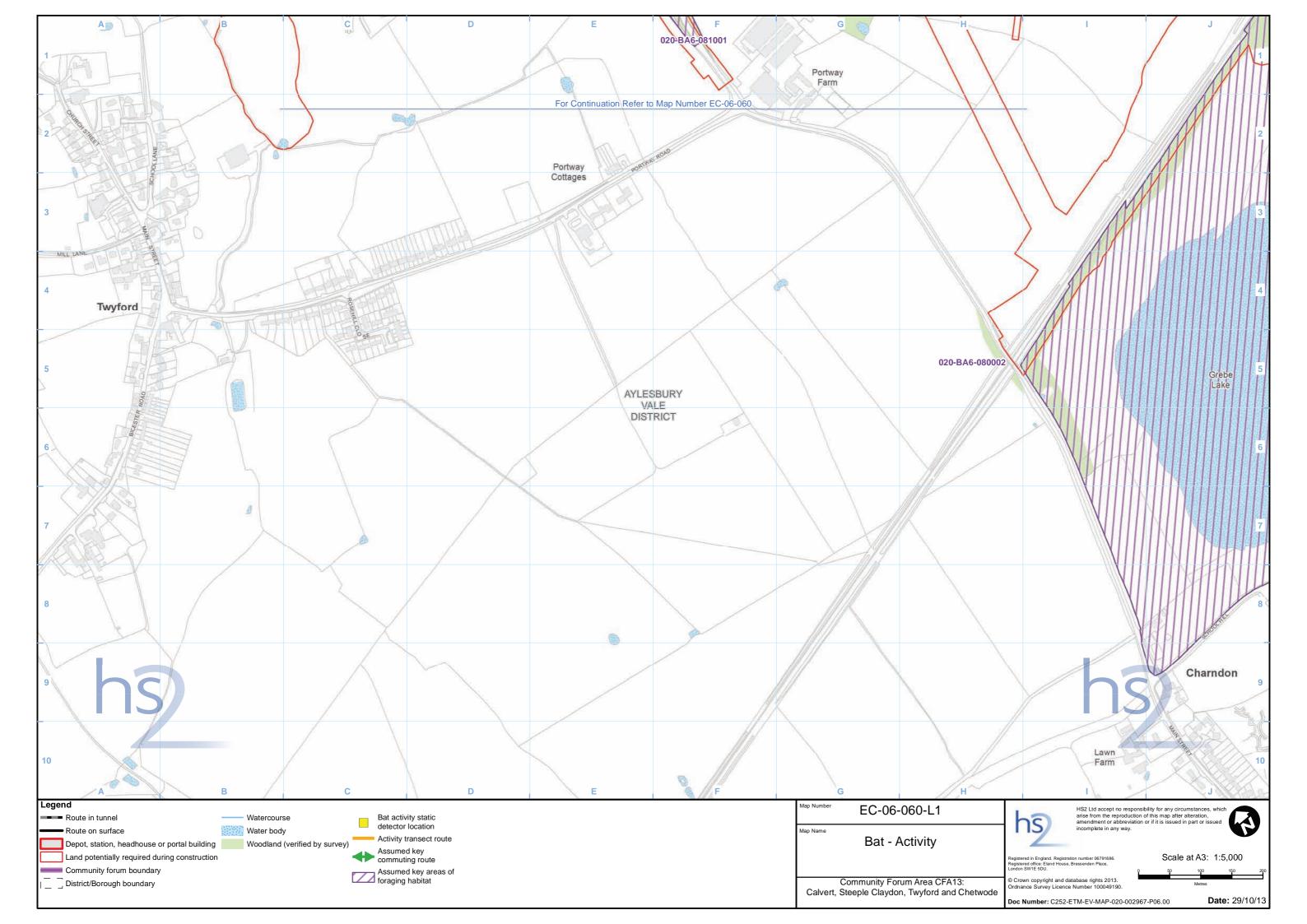


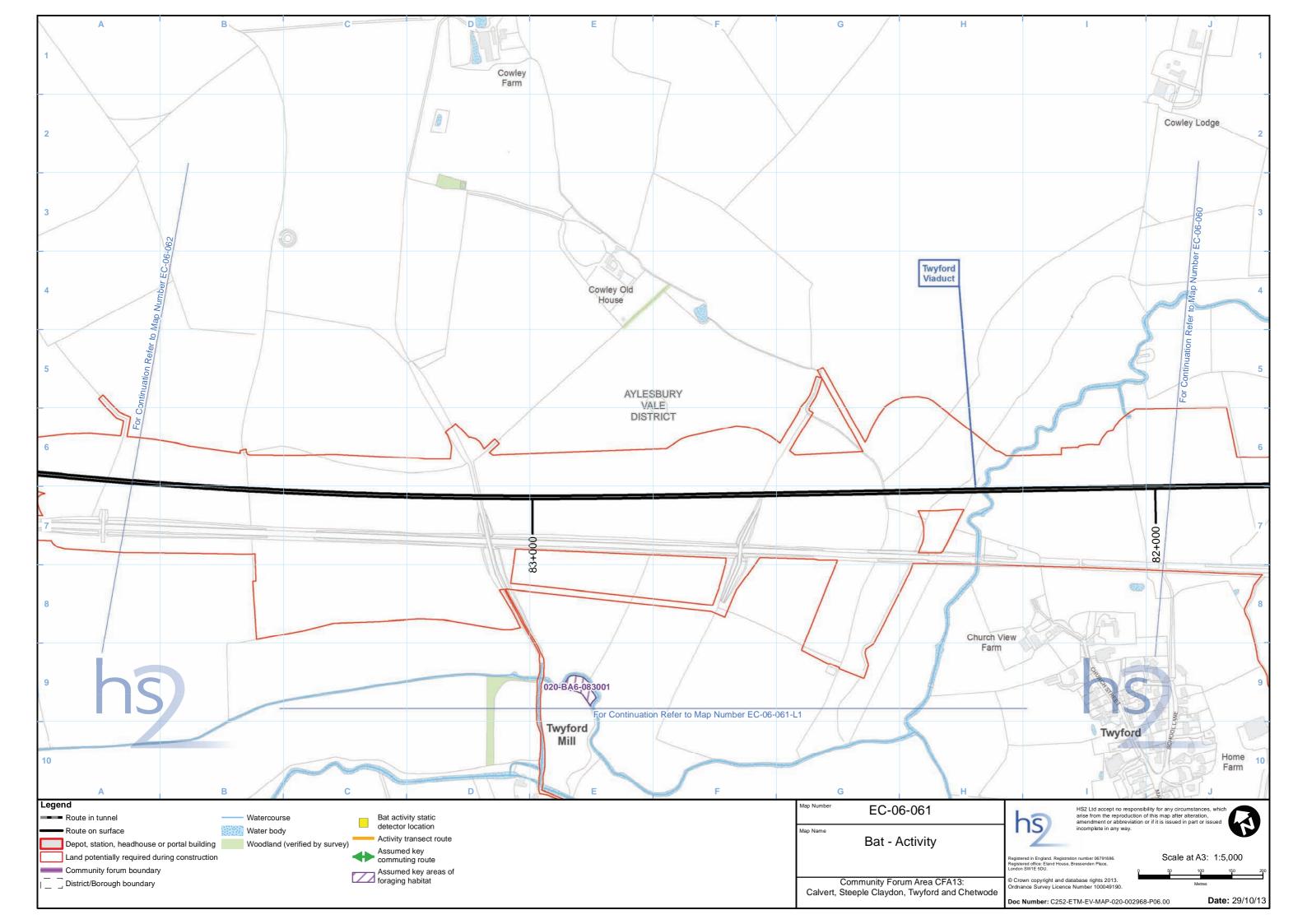


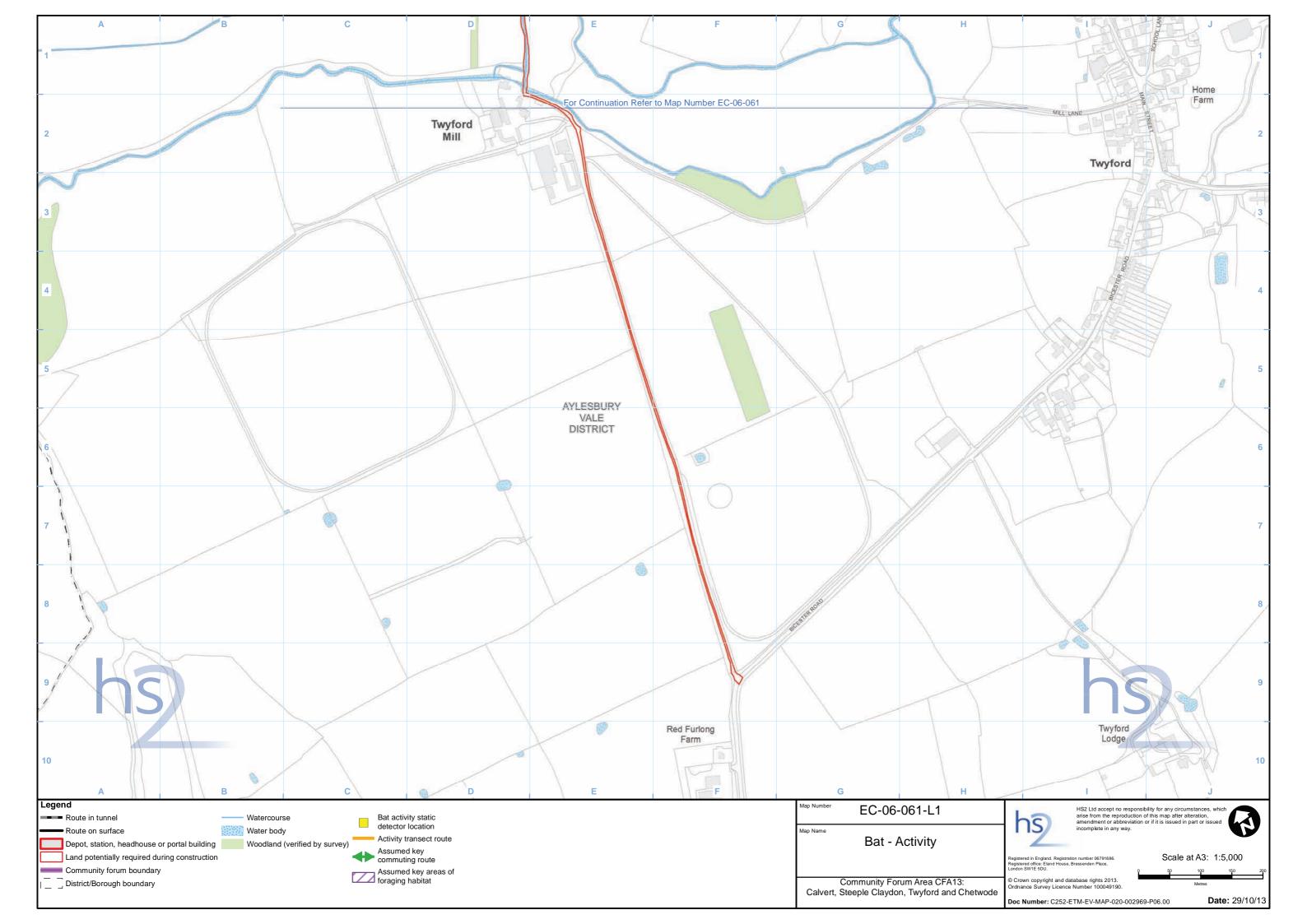


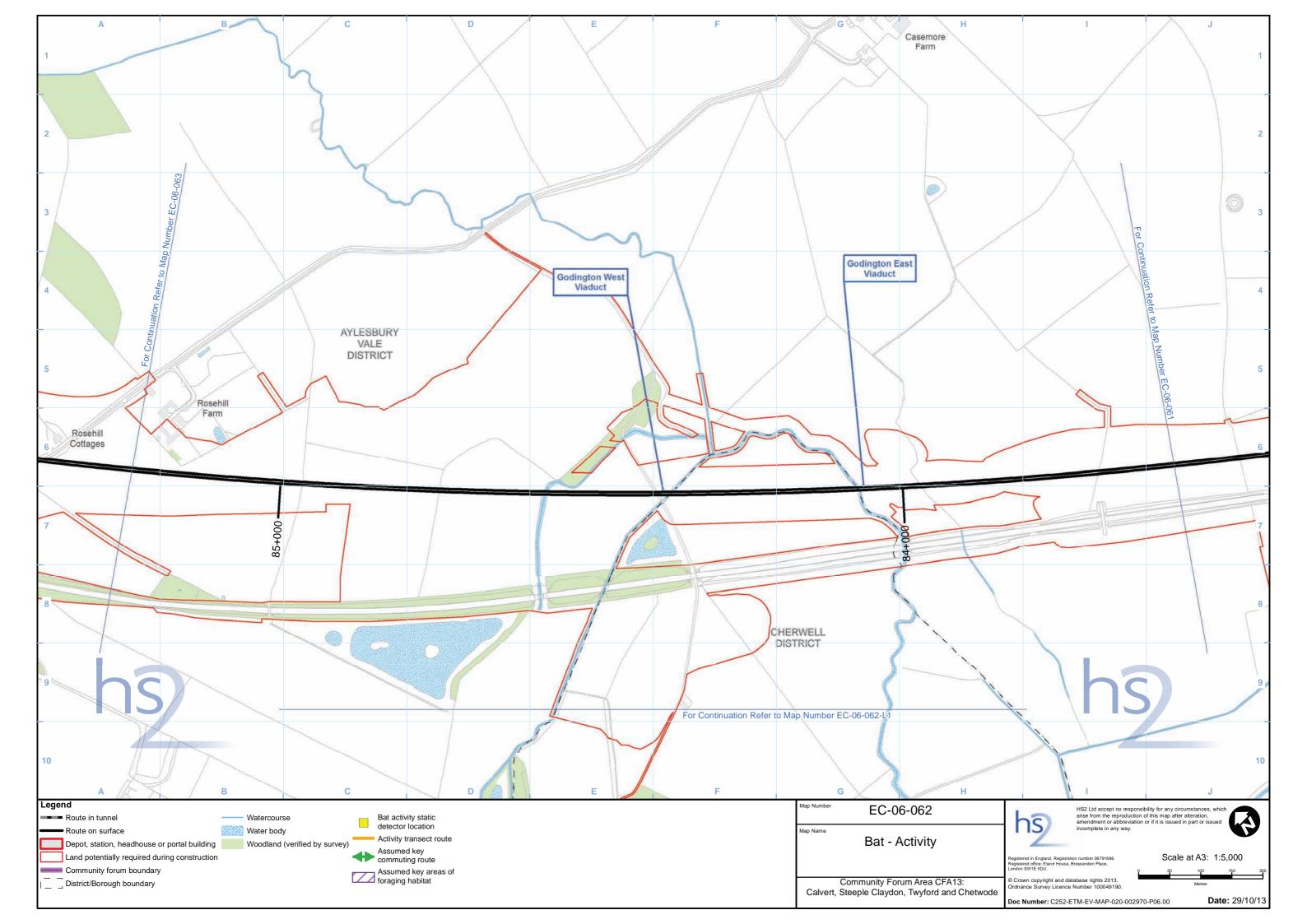


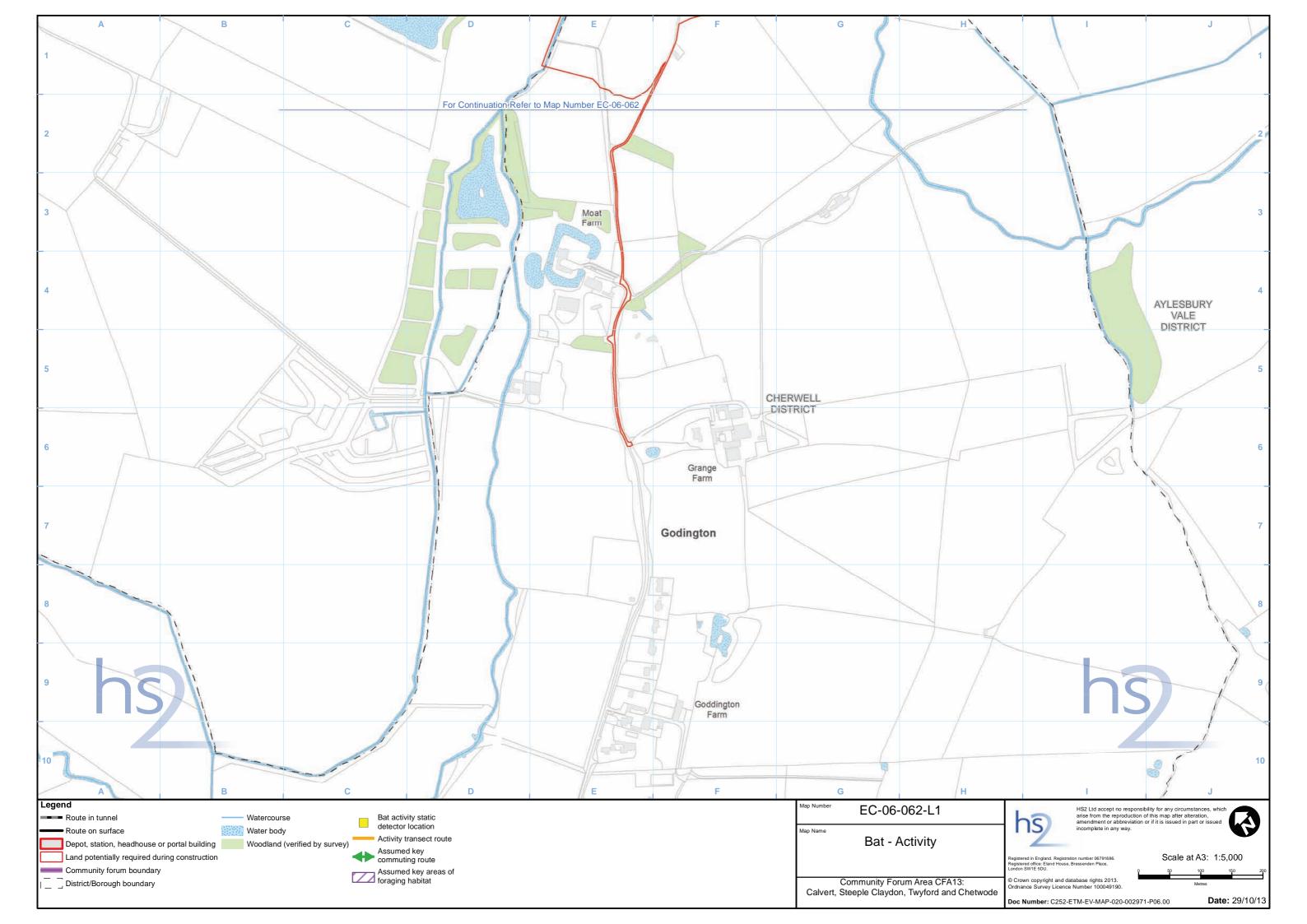


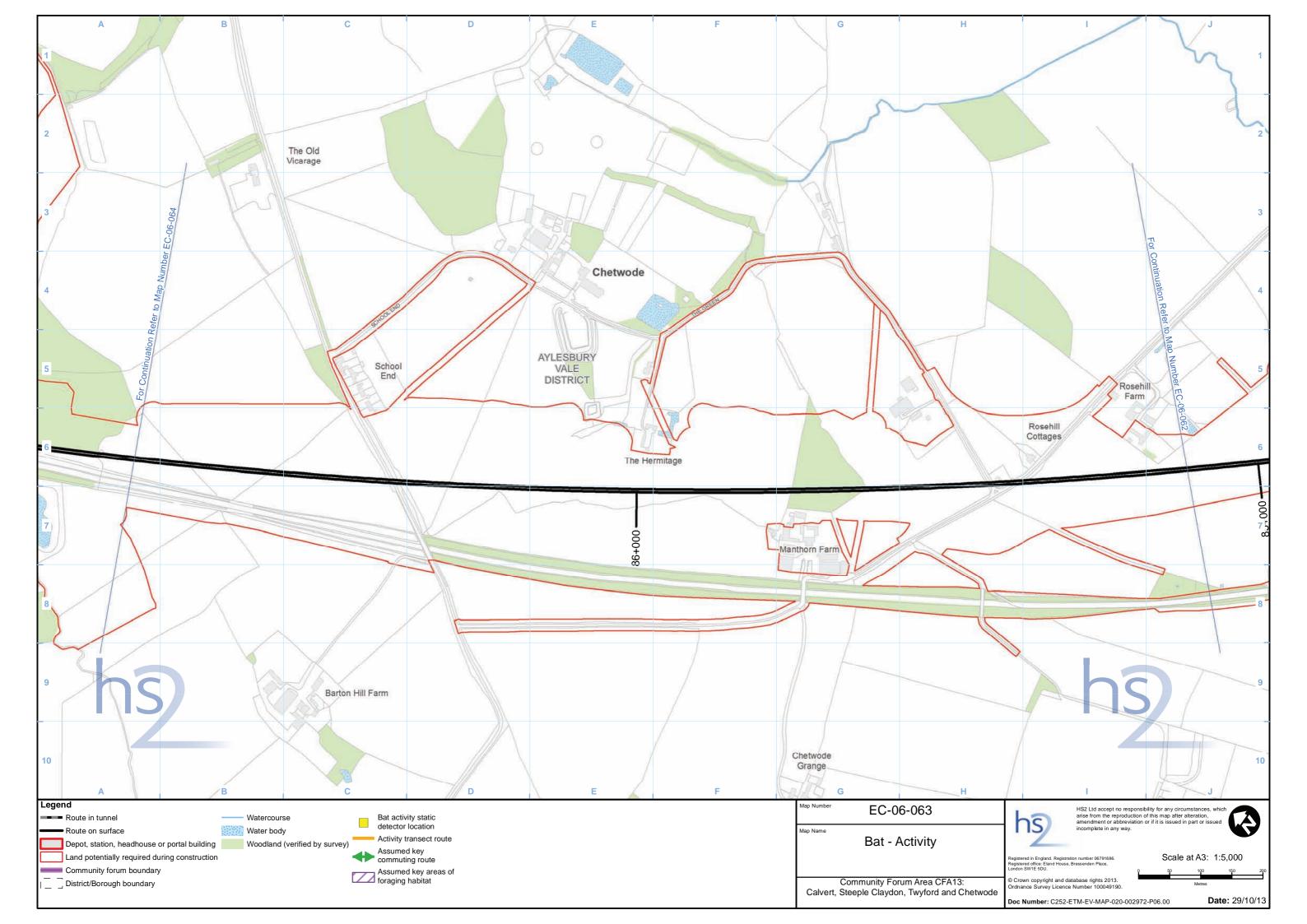


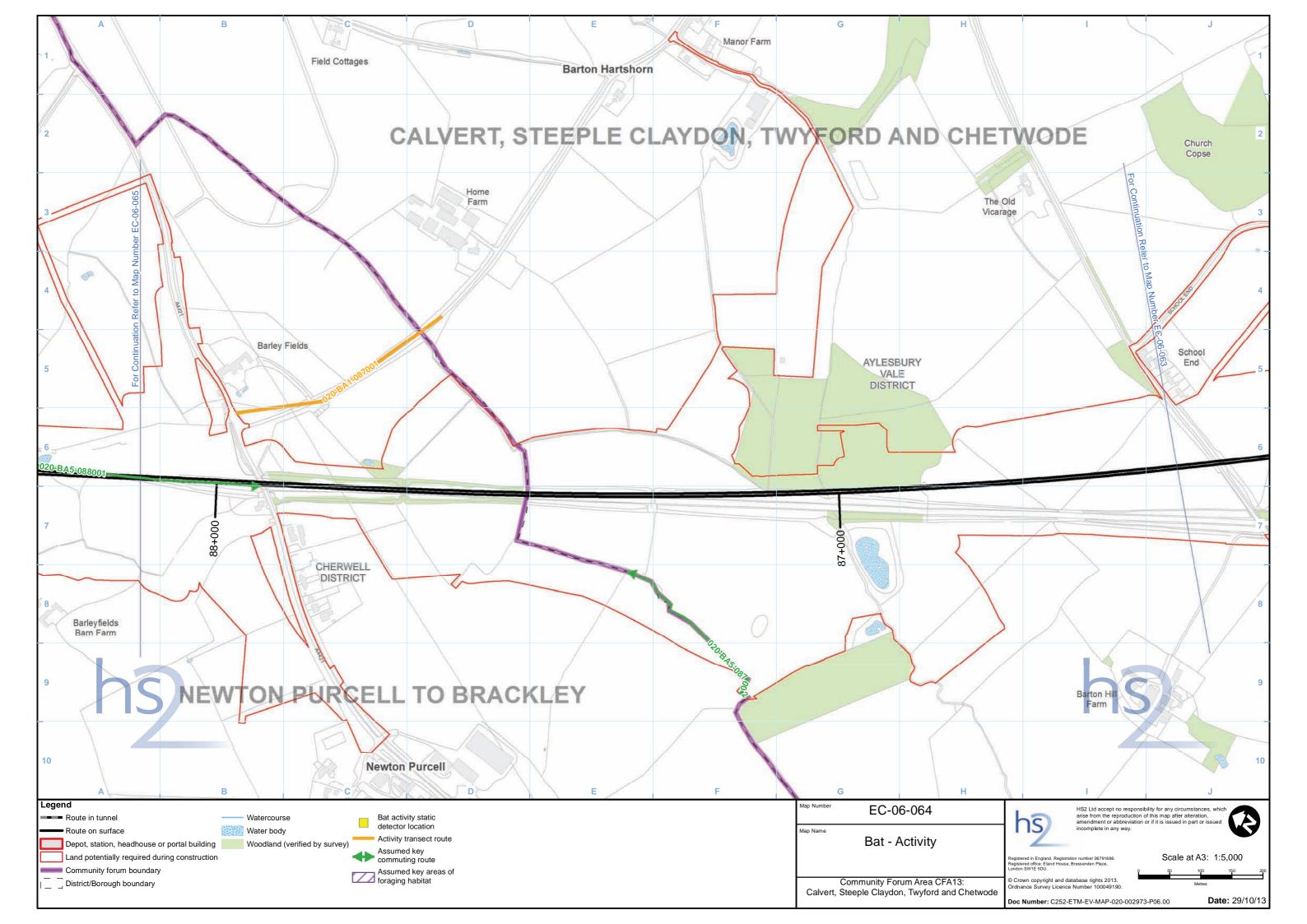








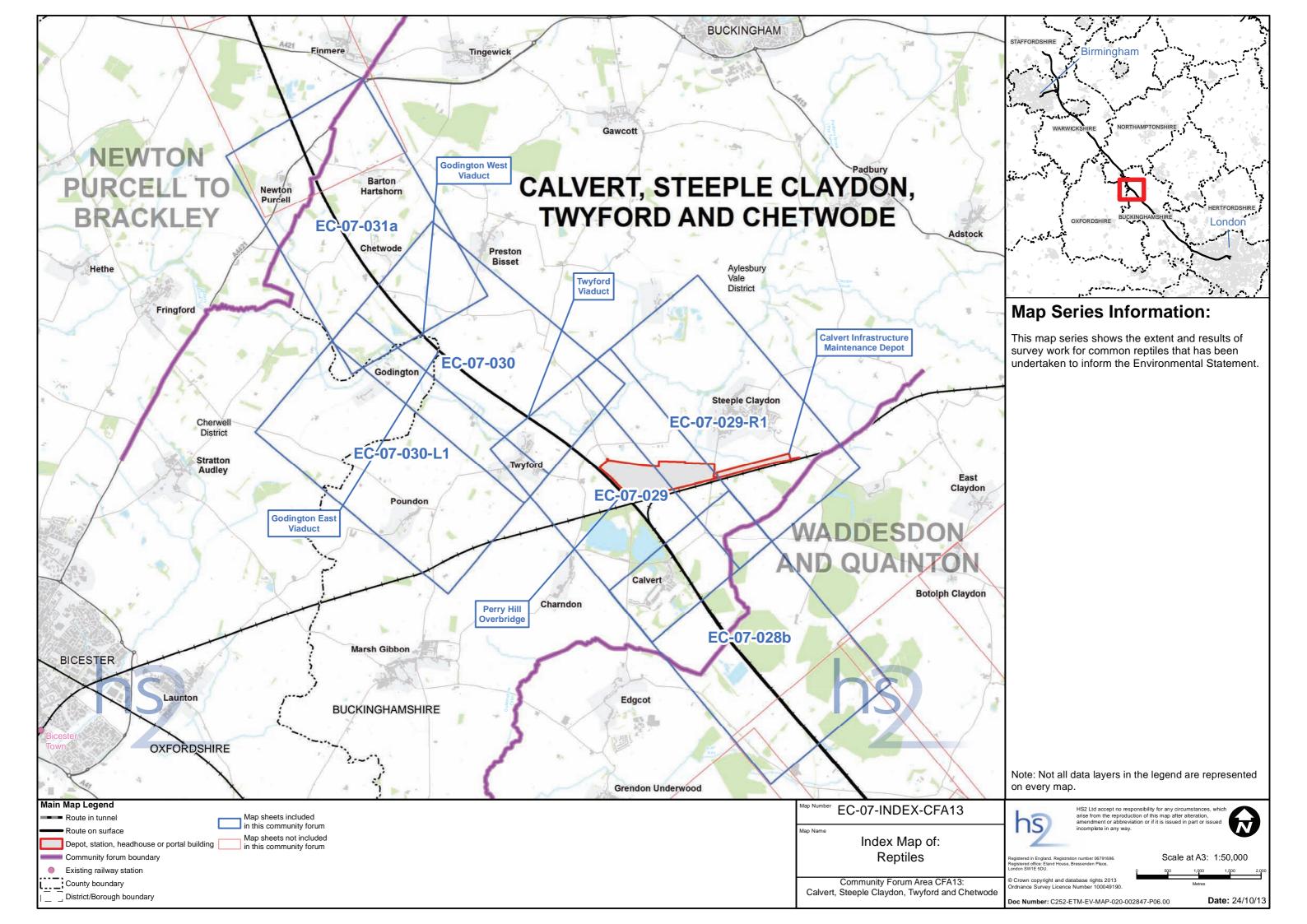


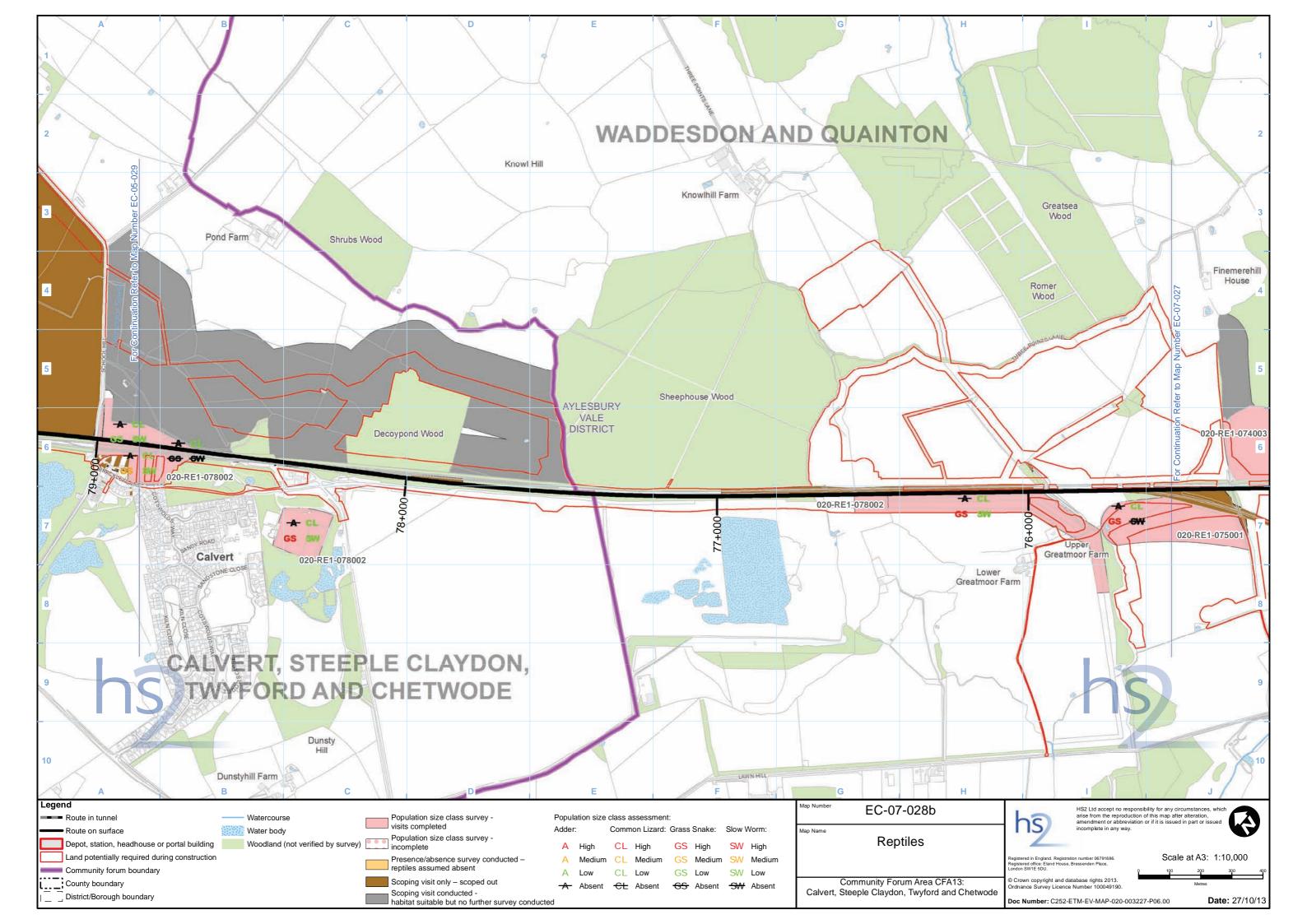


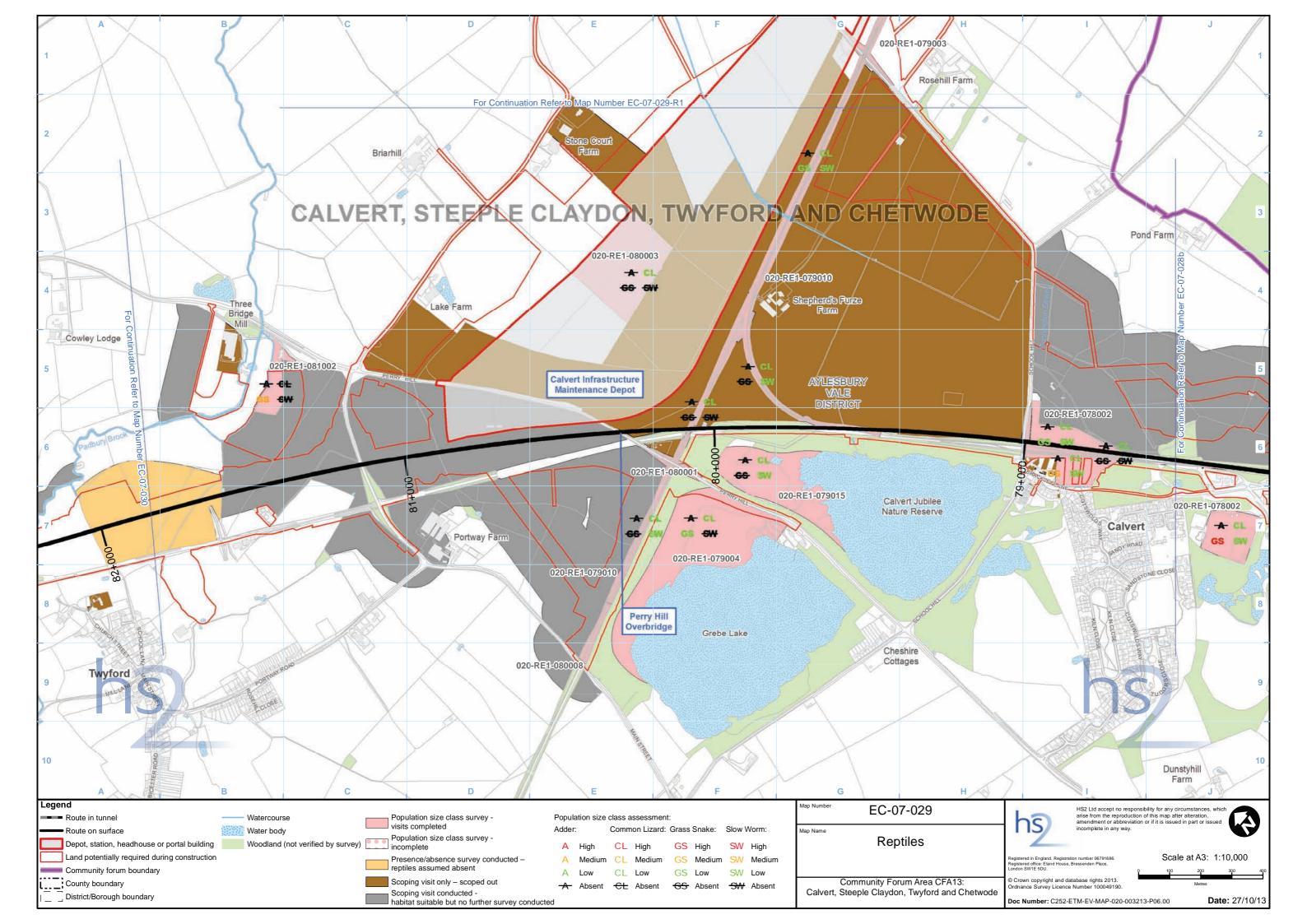


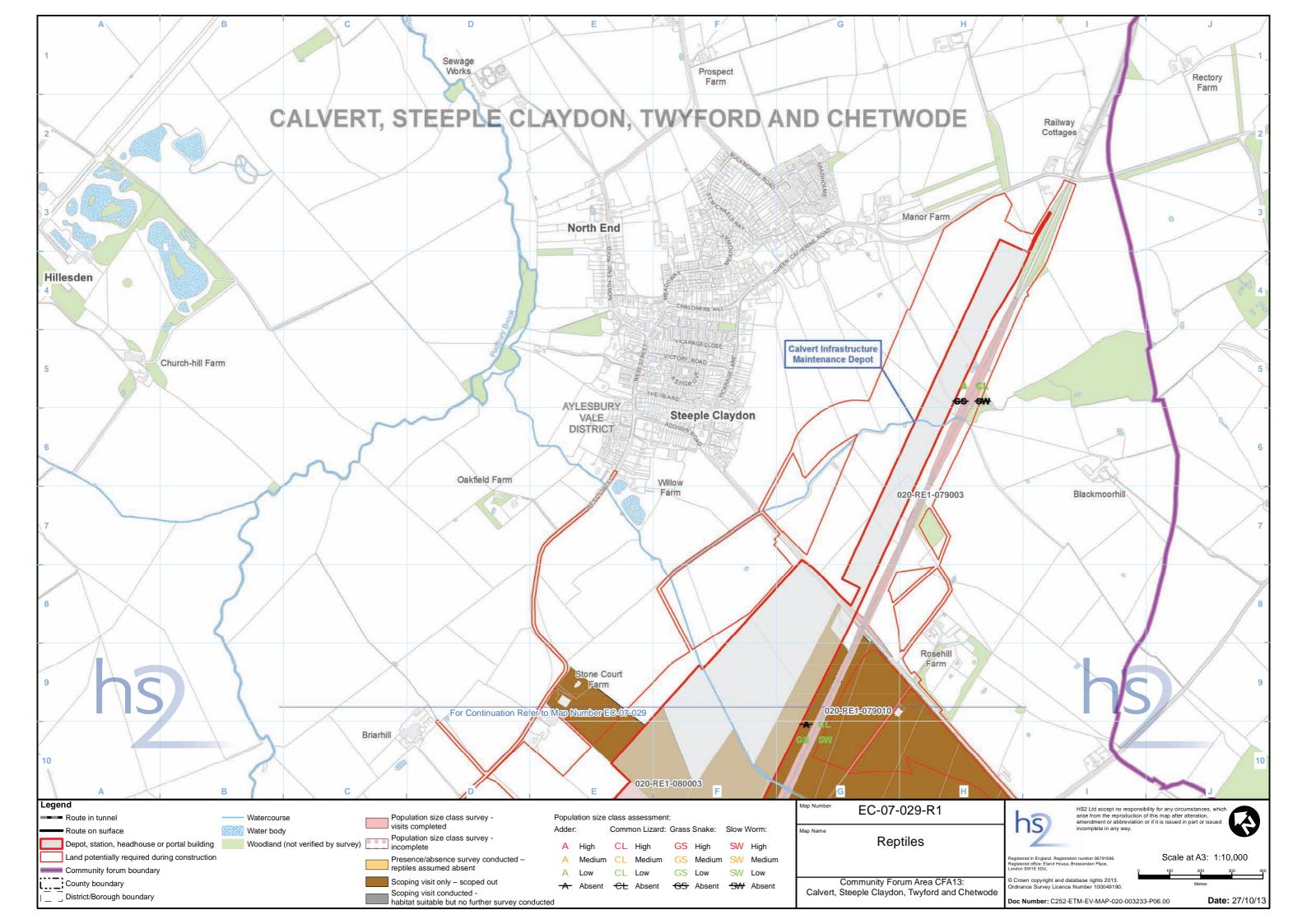
LONDON-WEST MIDLANDS ENVIRONMENTAL STATEMENT

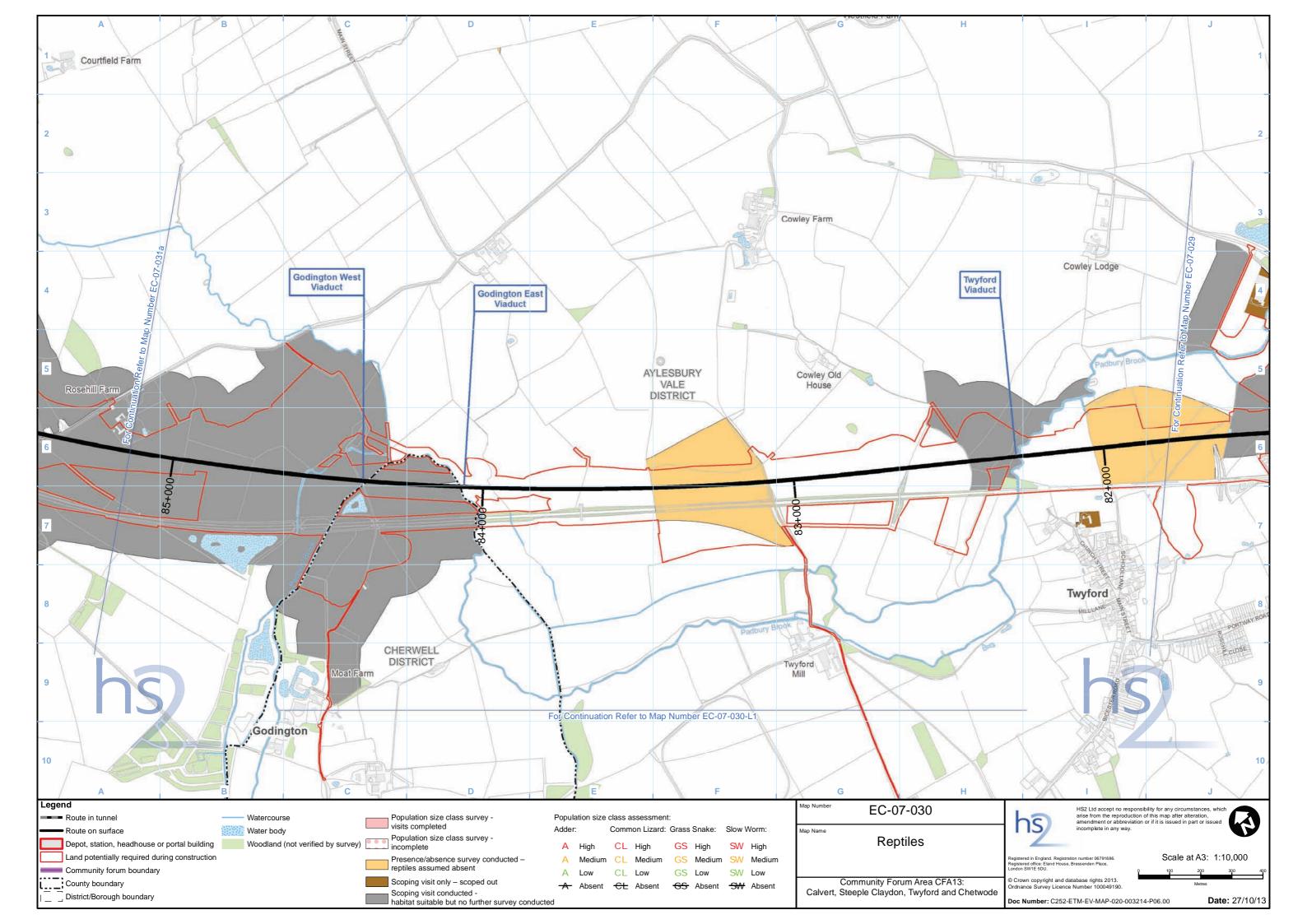
EC-07 – Reptiles

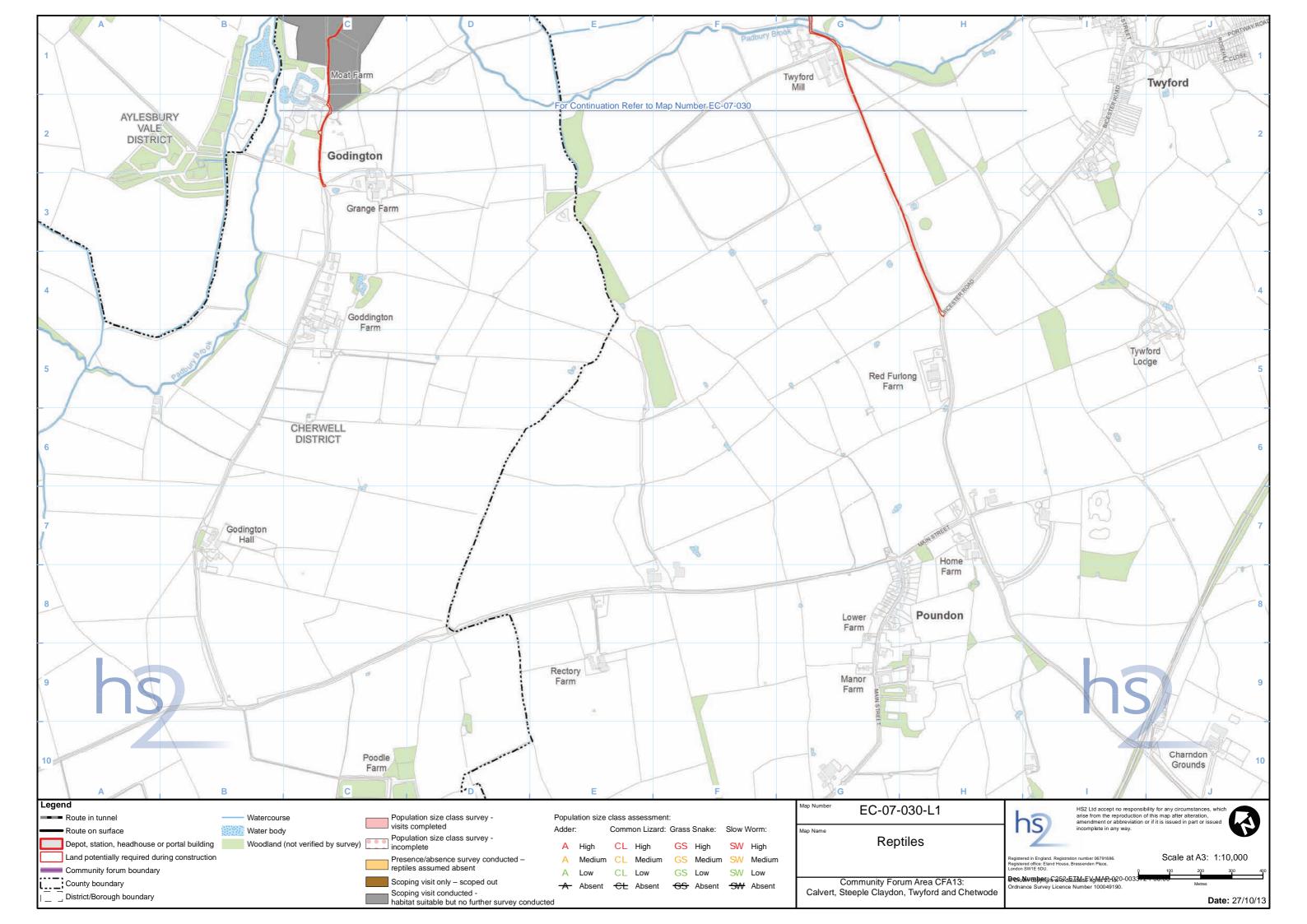


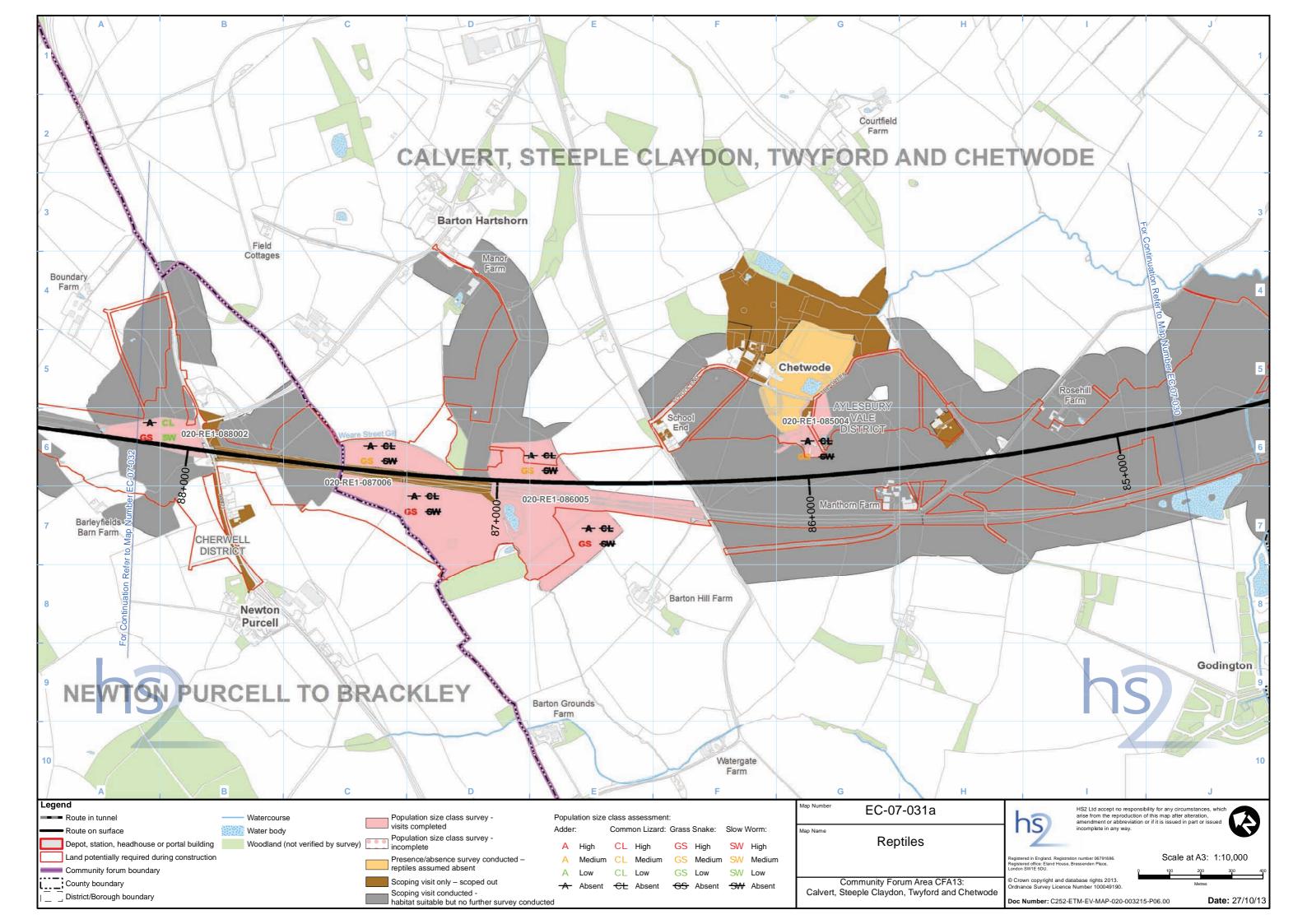








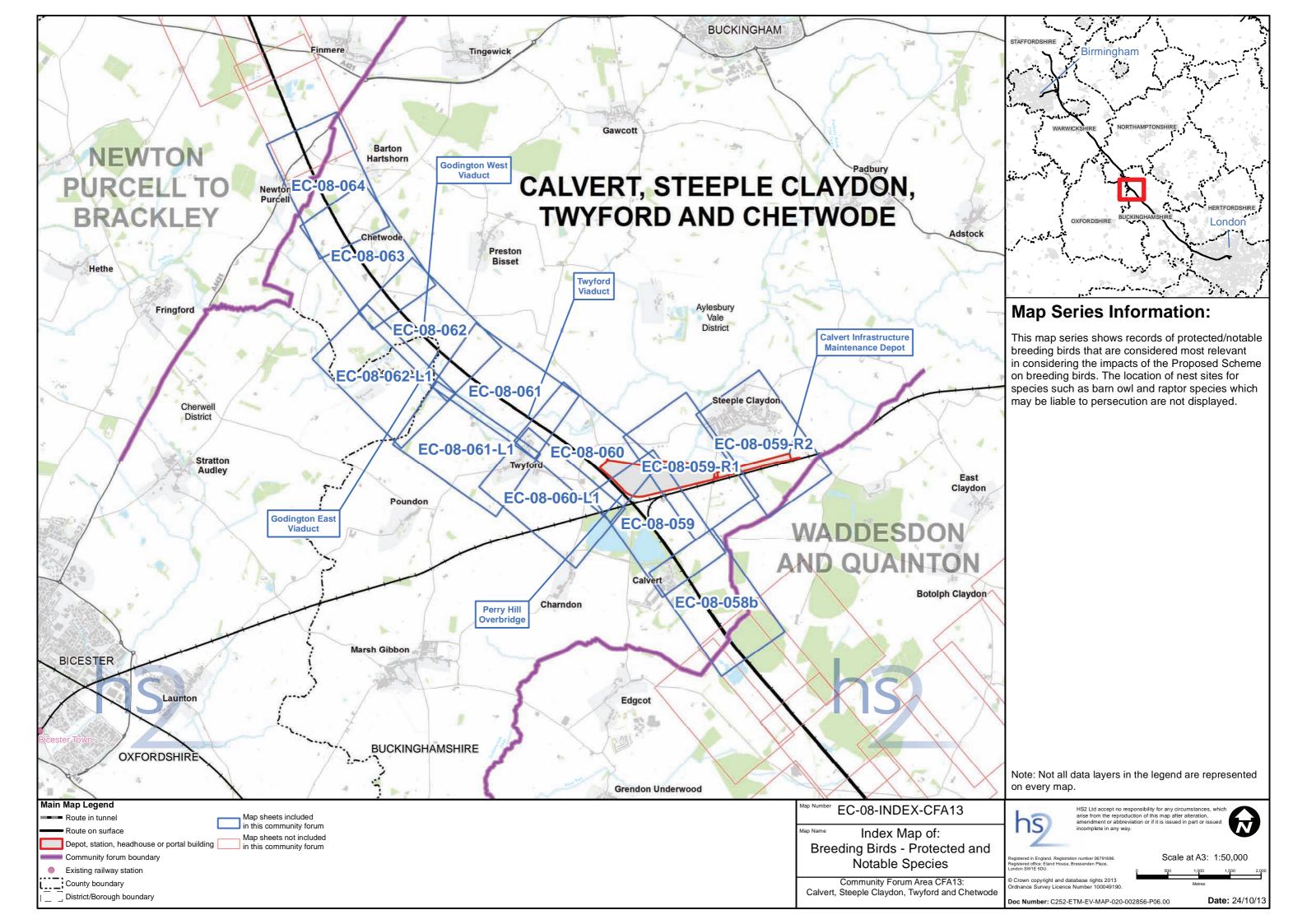






LONDON-WEST MIDLANDS ENVIRONMENTAL STATEMENT

EC-o8 – Breeding Birds – Protected and Notable Species



			Community Forum Area (CFA) where species recorded and considered relevant to the assessment				
BTO species code	Common name	Protected status	CFA 1-6	CFA 7-15	CFA 16-22	CFA 23-26	
вн	Black-headed Gull	BoCC amber listed, localised and scarce				✓	
CA	Cormorant	Localised breeding species		✓		✓	
СВ	Corn bunting	BoCC red listed*, local and scarce		✓	✓	✓	
СК	Cuckoo	BoCC concern red listed, local and scarce	✓	✓		✓	
CN	Common tern	BoCC amber listed, local		✓		✓	
FC	Firecrest	Schedule 1, BoCC amber listed, local				✓	
GA	Gadwall	BoCC amber listed, scarce breeding species		✓		✓	
GH	Grasshopper warbler	BoCC red listed, local		✓		✓	
GW	Garden warbler	local	✓			✓	
H.	Grey heron	Localised breeding species				✓	
KF	Kingfisher	Annex 1, Schedule 1, BoCC amber list			✓	✓	
L.	Lapwing	BoCC red listed, localised flocks.	✓	✓	✓	✓	
LG	Little grebe	BOCC Amber listed				✓	
LS	Lesser spotted woodpecker	BoCC red listed, now local and scarce		✓	✓	✓	
MA	Mallard	BoCC amber listed				✓	
MP	Meadow Pipit	BoCC amber listed, localised breeding species	✓			✓	
MT	Marsh tit	BoCC red listed, localised	✓	✓	✓	✓	
N.	Nightingale	BoCC amber listed, scarce and local				✓	
ос	Oystercatcher	BoCC amber listed, localised and scarce (WMM)		✓	✓	✓	
P.	Grey partridge	BoCC red listed, scarce		✓	✓	✓	
RK	Redshank	BoCC amber listed, scarce inland				✓	
RN	Raven	Locally rare		✓		✓	
SF	Spotted flycatcher	BoCC red listed, scarce		✓	✓	✓	
SM	Sand martin	BoCC amber listed			✓		
SV	Shoveler	BoCC amber listed, scarce breeding species		✓			
TD	Turtle dove	BoCC red listed, local and scarce				✓	
TS	Tree sparrow	BoCC red listed, local and scarce		✓	✓	✓	
TU	Tufted duck	BoCC amber listed				✓	
WK	Woodcock	BoCC amber listed, under-recorded				✓	
WT	Willow tit	BoCC red listed, localised and v scarce		✓		✓	
YW	Yellow wagtail	BoCC red listed, scarce and local		✓	✓	✓	

^{*} Birds of Conservation Concern, which are in severe decline. Easton et al (2009).

EC-08 - Legend

EC-08 - Breeding Birds - Protected and Notable Species Legend

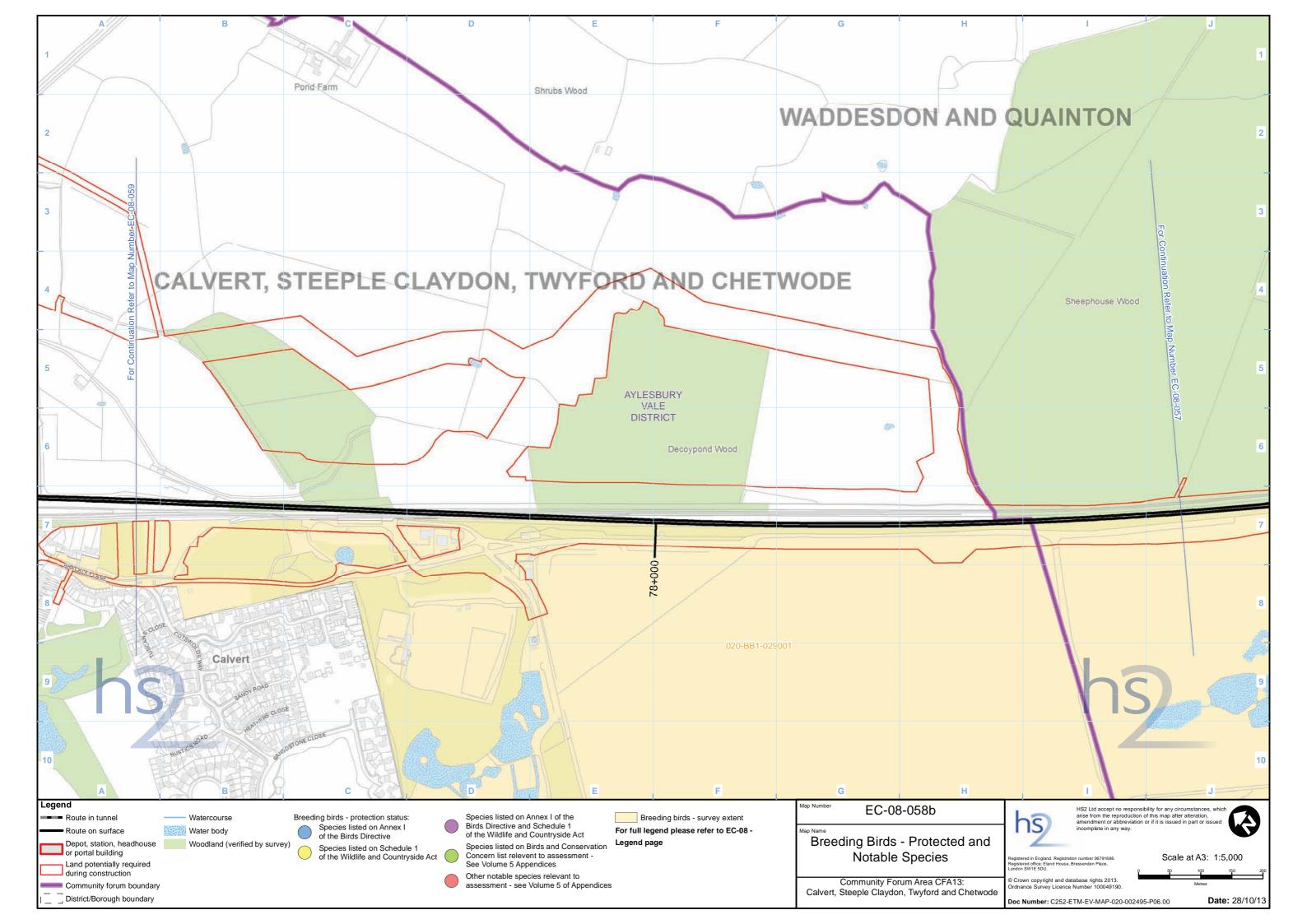
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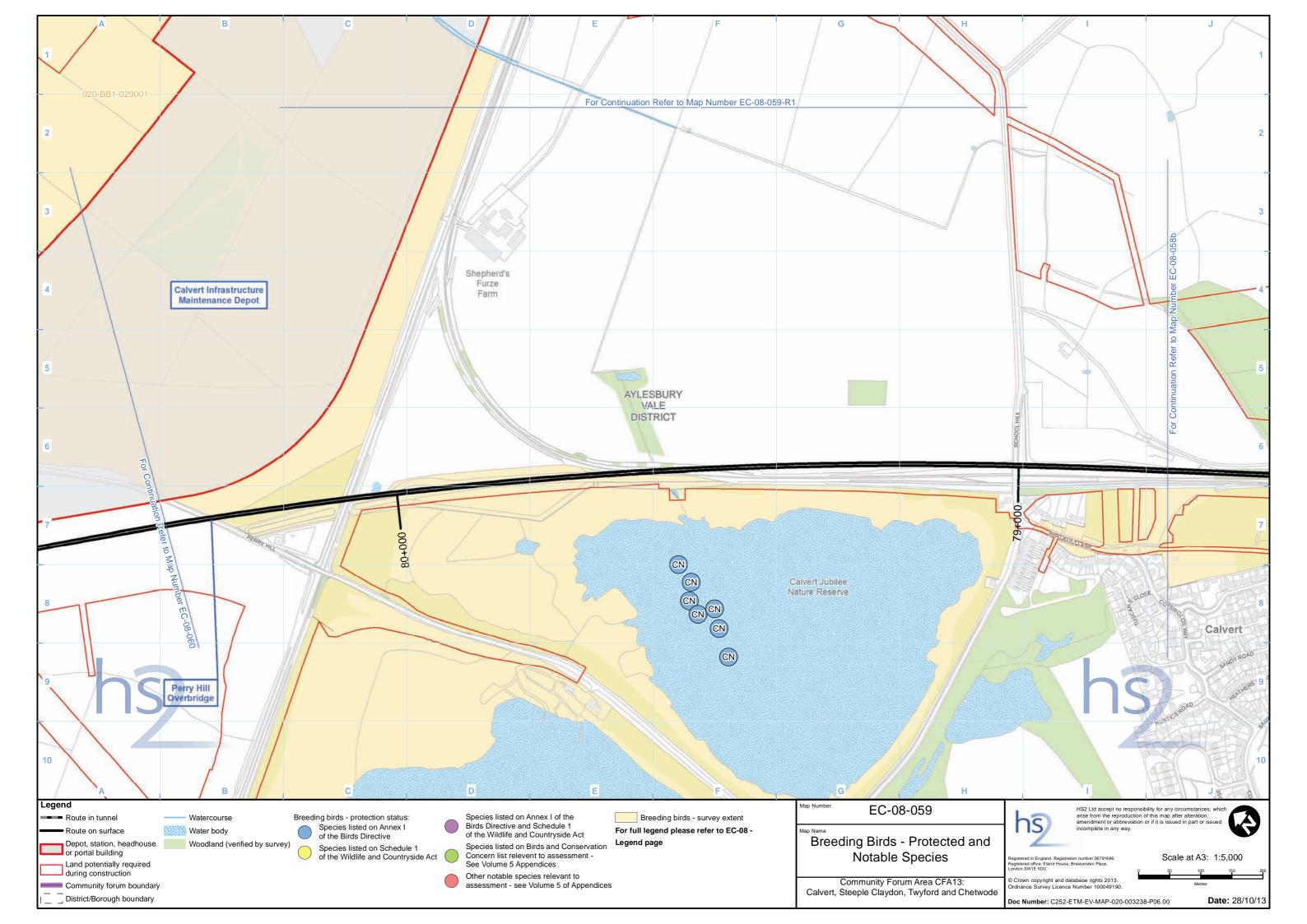
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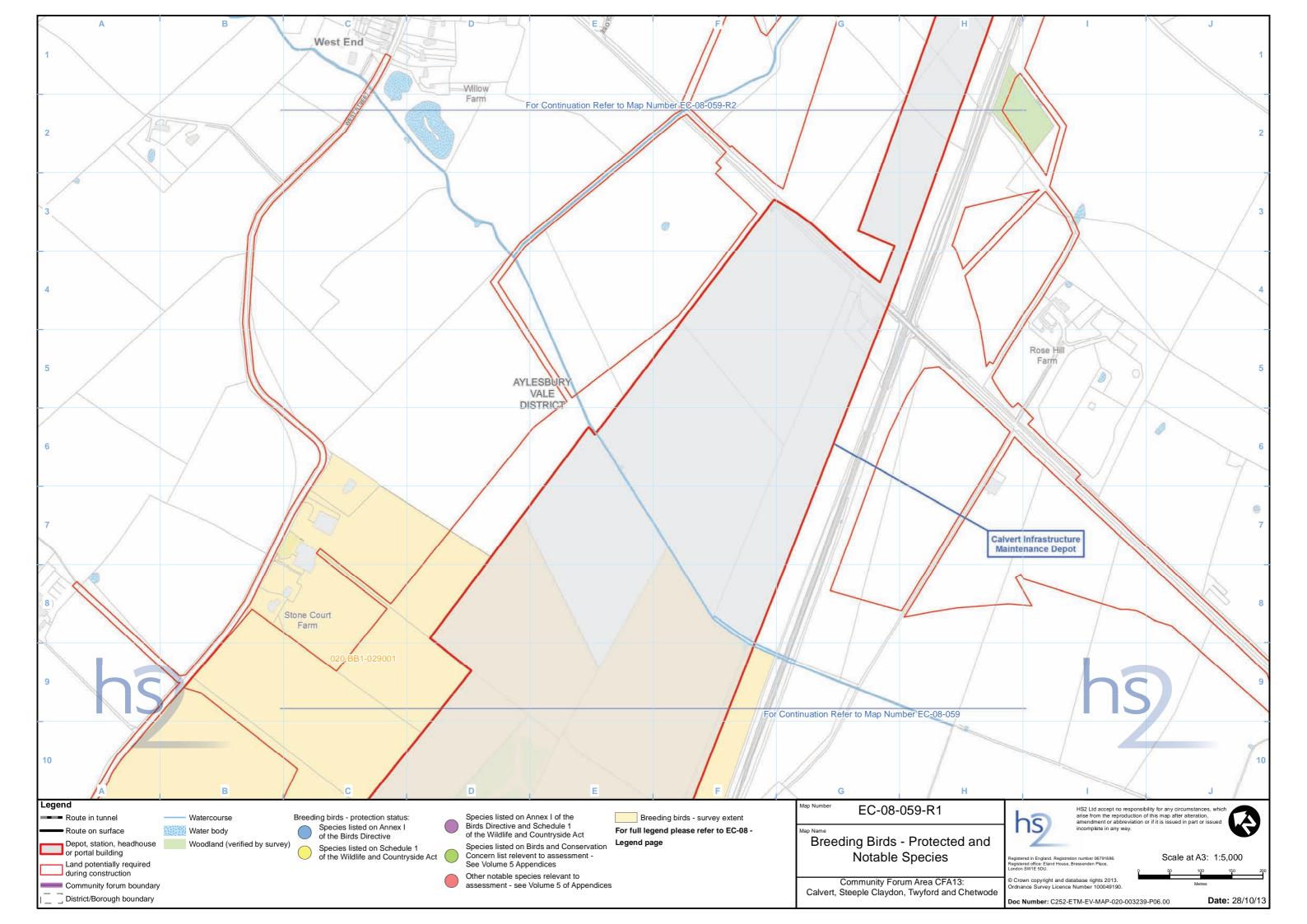
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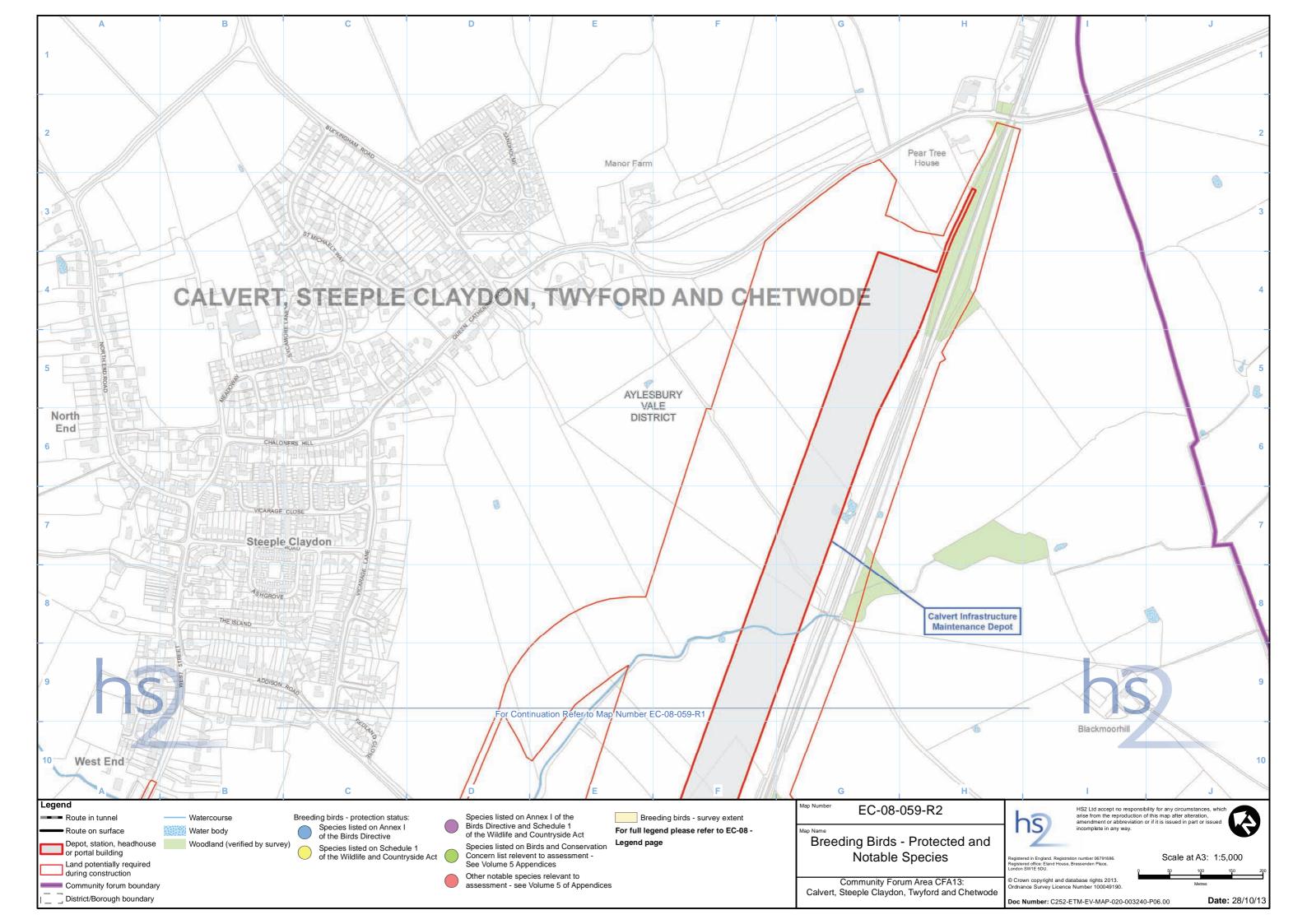
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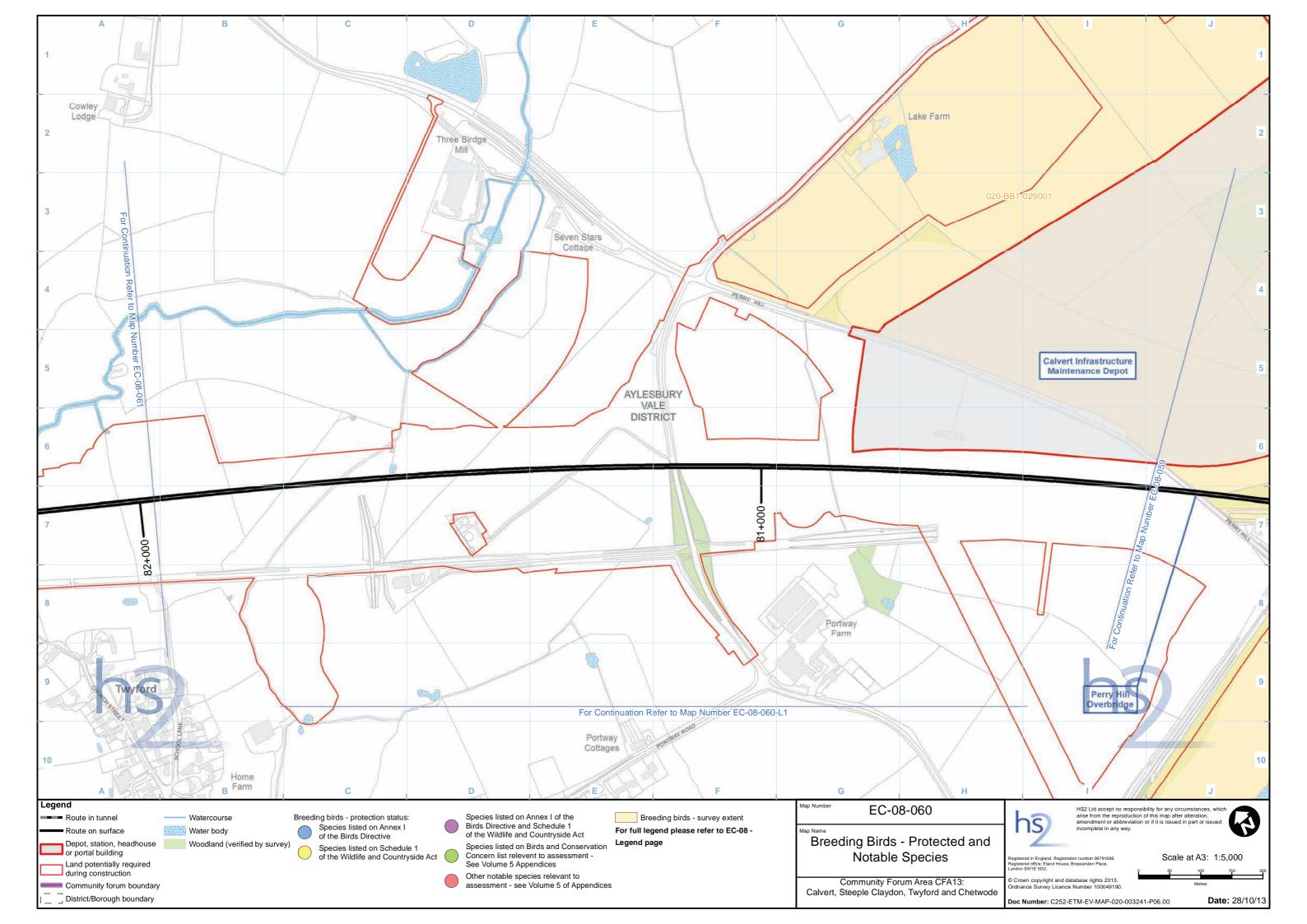
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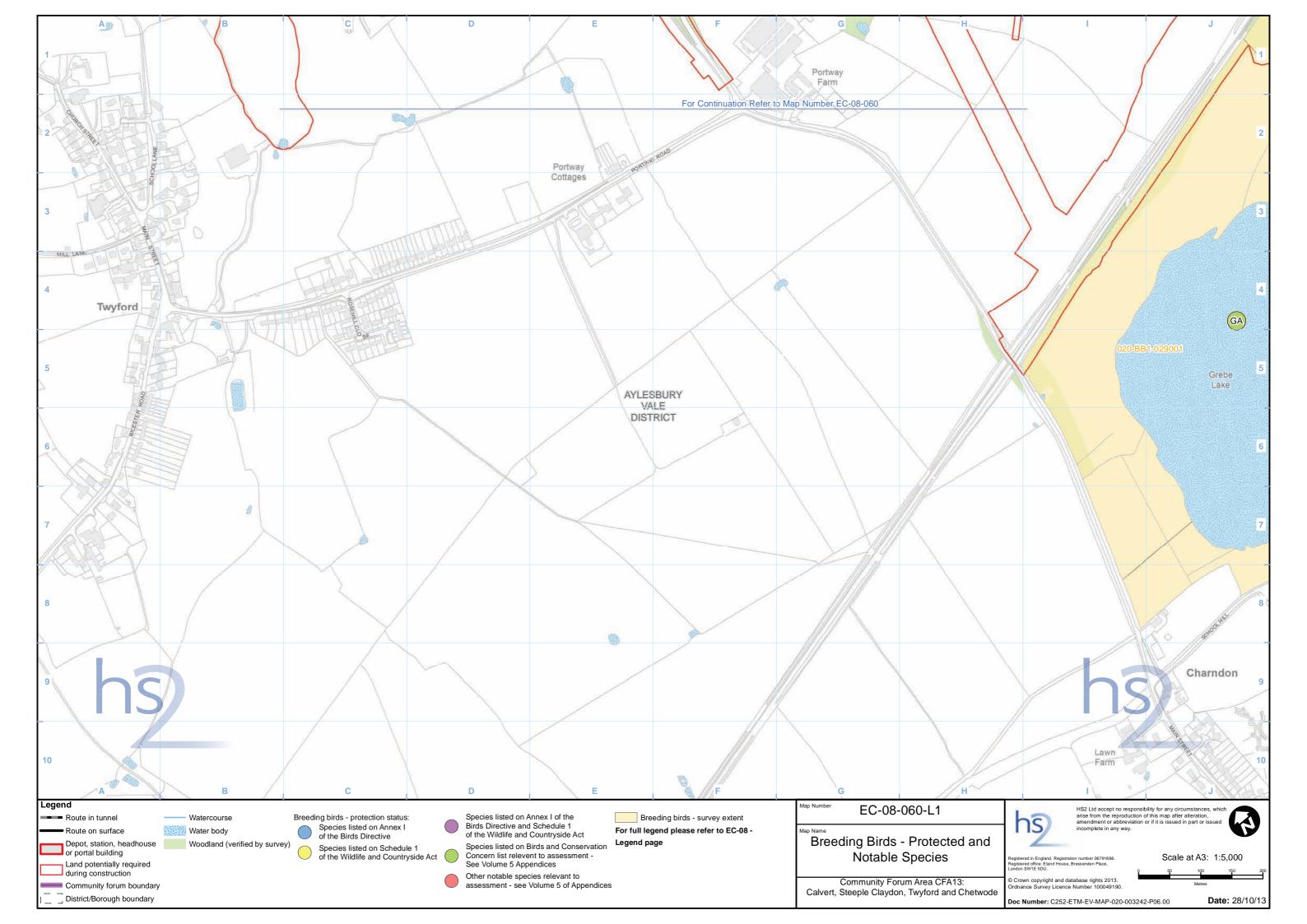


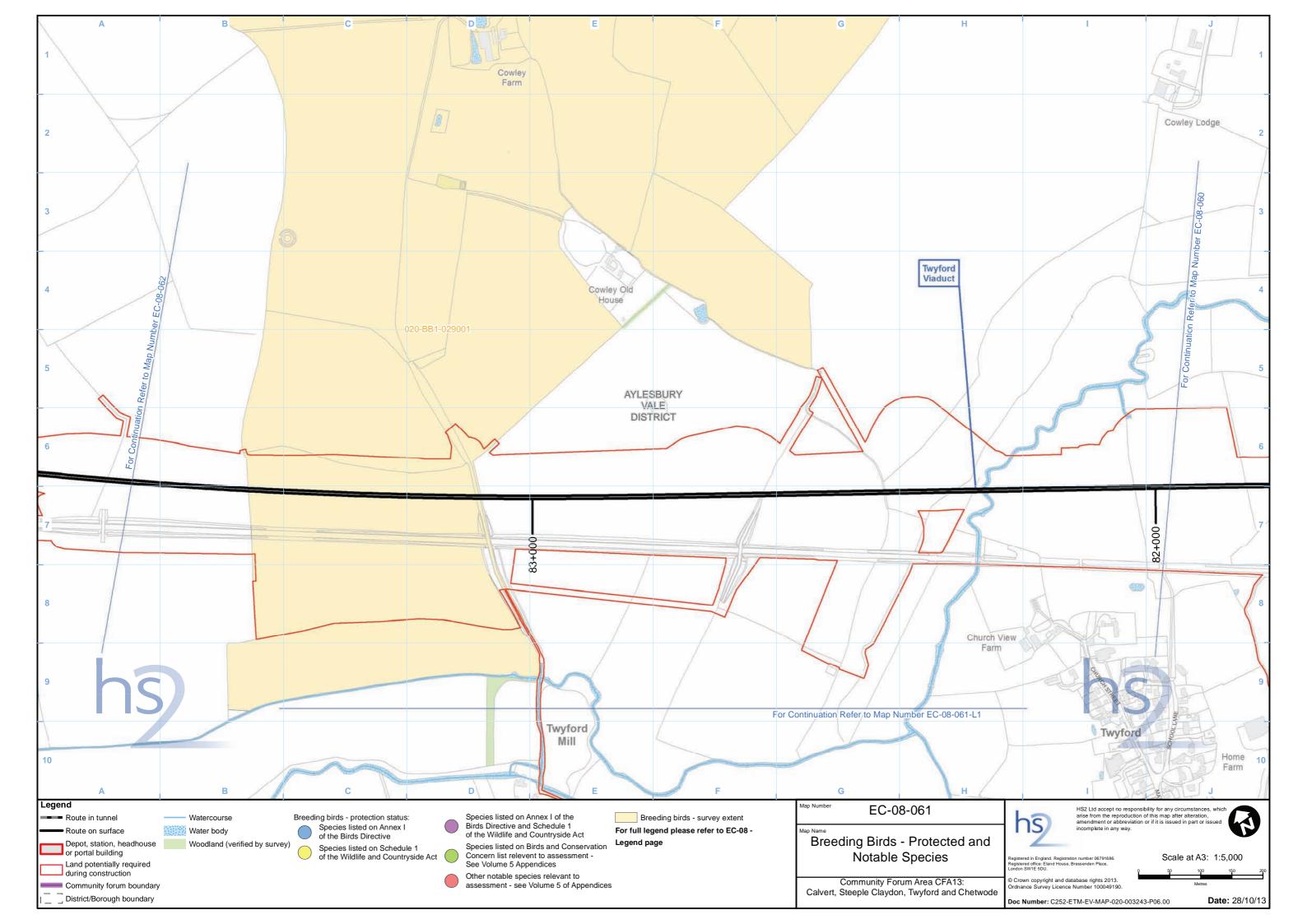


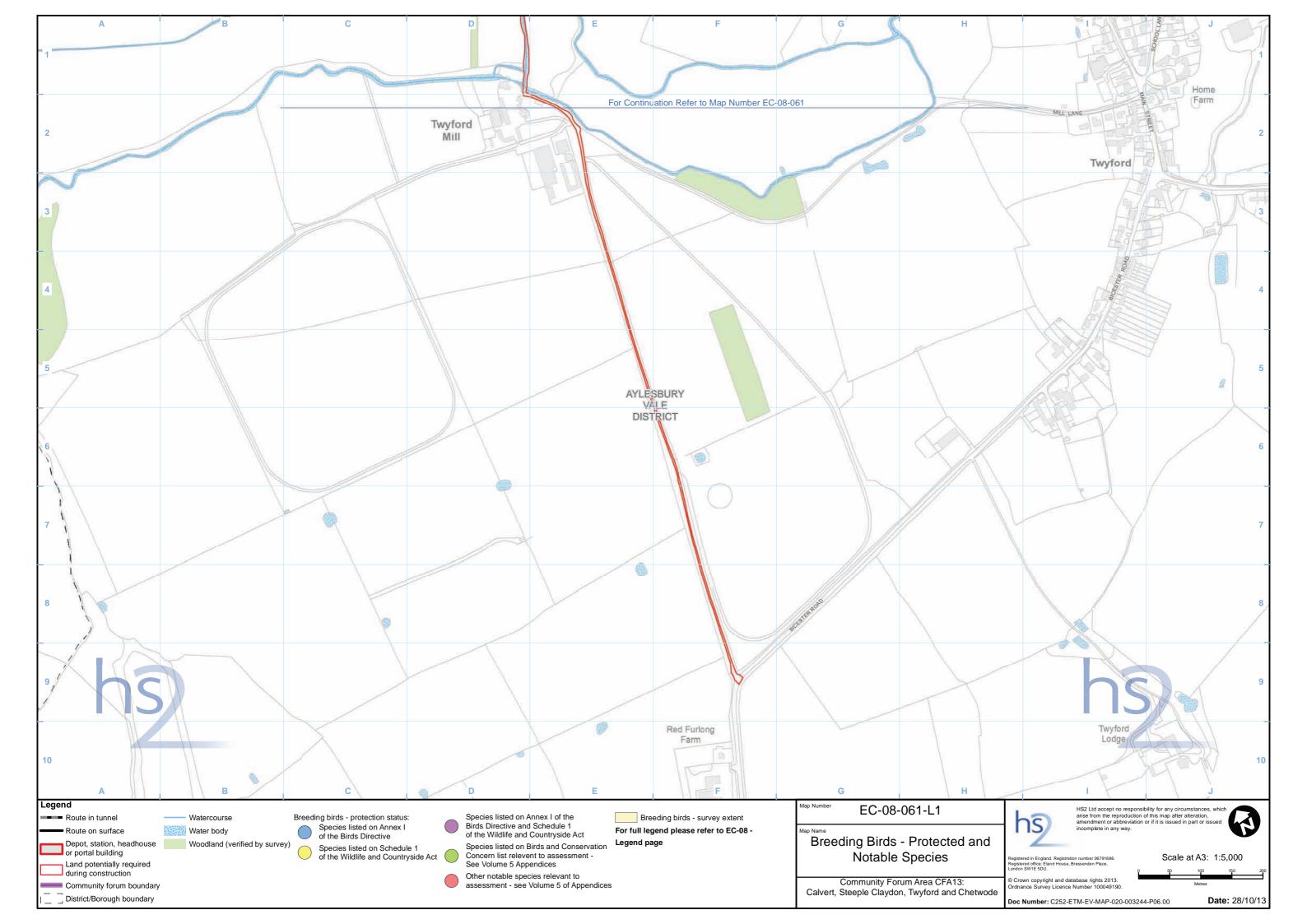


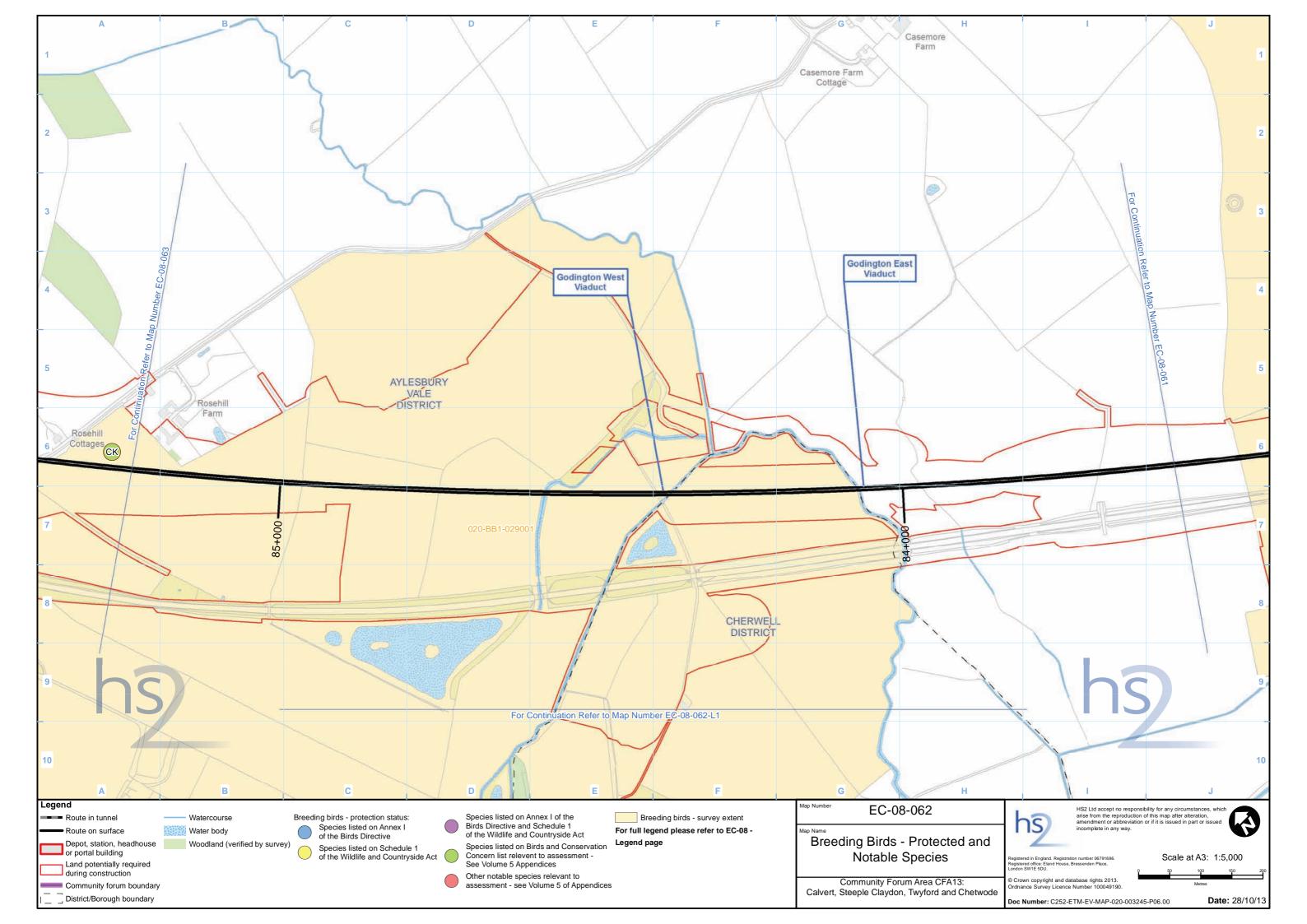


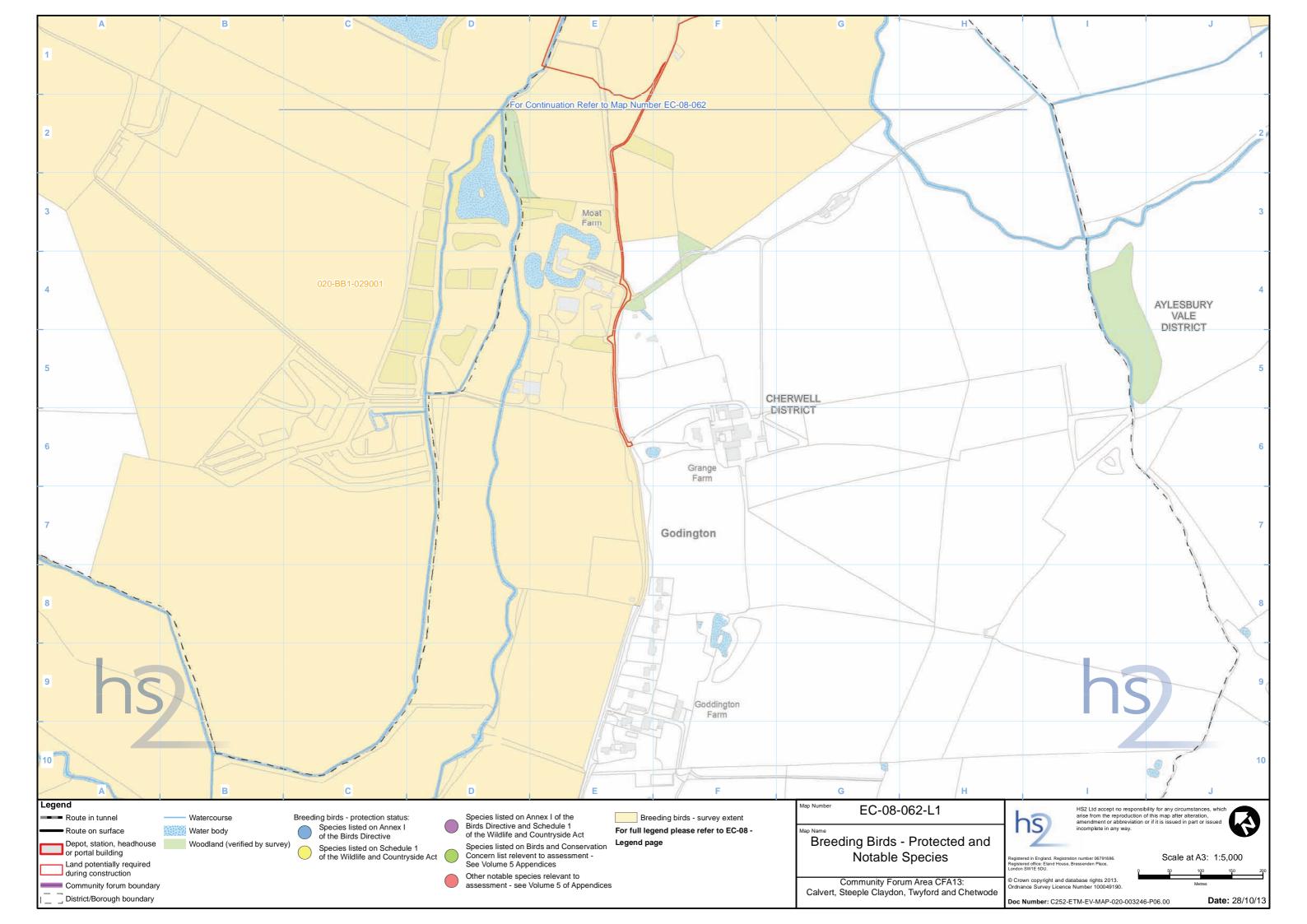


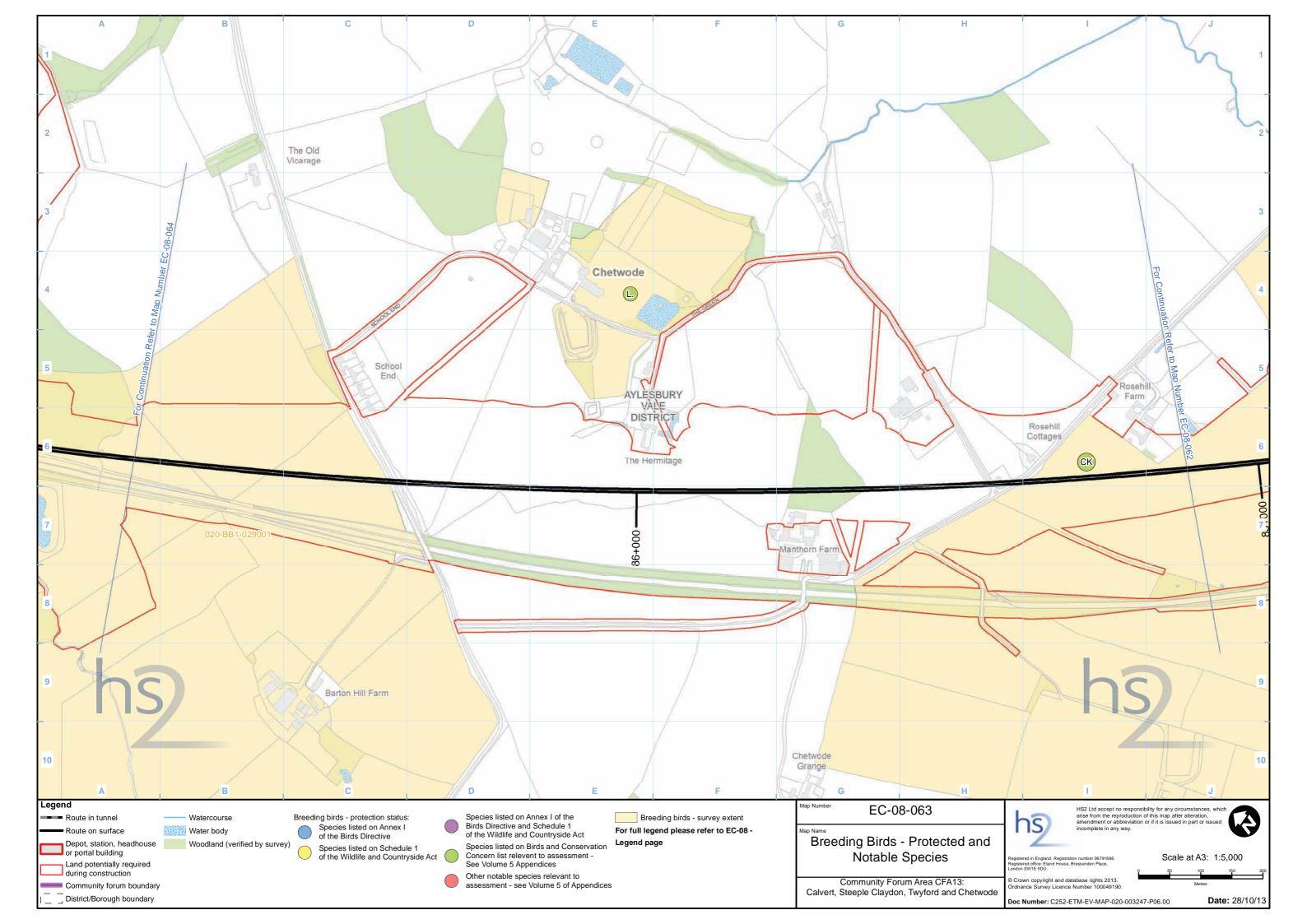


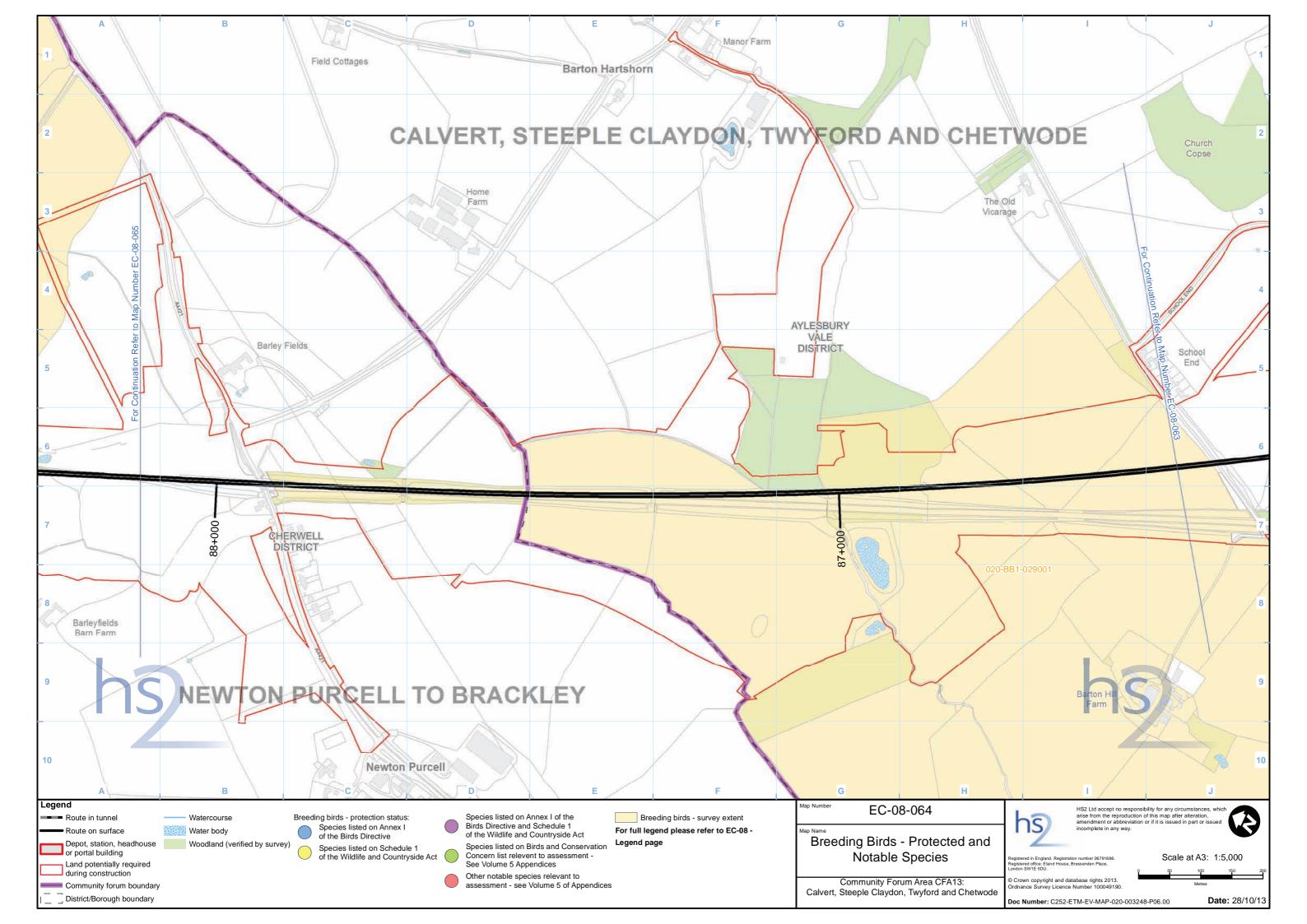










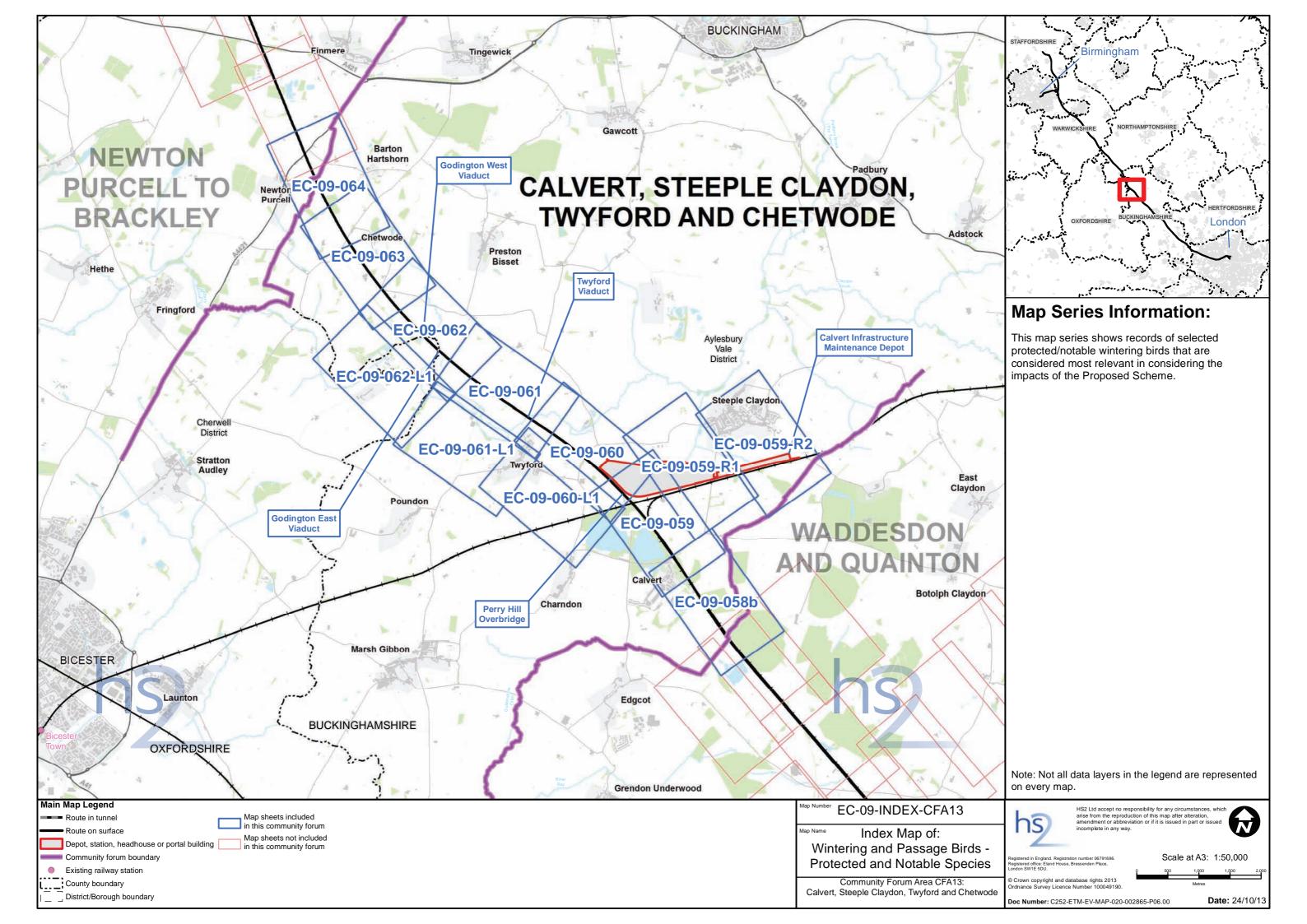


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LONDON-WEST MIDLANDS ENVIRONMENTAL STATEMENT

EC-09 – Wintering and Passage Birds – Protected and Notable Species



BTO species code	Common name	Protected status	Community Forum Area (CFA) where species recorded and considered relevant to the assessment			
			CFA 1-6	CFA 7-15	CFA 16-22	CFA 23-26
ВС	Blackcap	Scarce in winter				✓
BL	Brambling	Schedule 1		✓	✓	✓
во	Barn owl	Schedule 1, BoCC amber listed*, localised and scarce			✓	✓
СВ	Corn bunting	BoCC red listed**, local and scarce			✓	✓
СС	Chiffchaff	Scarce in winter				✓
CW	Cetti's warbler	Schedule 1, scarce and local		✓		✓
ET	Little egret	Annex 1, BoCC amber listed, scarce	✓	✓	✓	✓
GA	Gadwall	BoCC amber List		✓	✓	✓
GE	Green sandpiper	Schedule 1, scarce and local in winter		✓	✓	✓
GN	Goldeneye	BOCC amber list		✓		
GP	Golden plover	Annex 1, BoCC amber listed, localised flocks		✓	✓	✓
JS	Jack snipe	BoCC amber list			✓	
KF	Kingfisher	Annex 1, Schedule 1, BoCC amber list	✓	✓	✓	
KT	Red Kite	Annex 1, Schedule 1, BoCC amber listed	✓	✓		
L.	Lapwing	BoCC red listed, localised flocks		✓	✓	✓
LE	Long-eared owl	Local and scarce				✓
LG	Little grebe	BoCC amber listed			✓	✓
LS	Lesser spotted woodpecker	BoCC red listed, now local and scarce		✓	✓	✓
MA	Mallard	BoCC amber listed				✓
ML	Merlin	Annex 1, Schedule 1, BoCC amber listed		✓		
MT	Marsh tit	BoCC red listed, localised		✓	✓	✓
P.	Grey partridge	BoCC red listed, scarce		✓	✓	✓
PE	Peregrine	Annex 1, Schedule 1		✓	✓	
PO	Pochard	BoCC amber listed		✓	✓	✓
RN	Raven	Locally rare		✓		✓
S.	Skylark	BoCC red listed, localised flocks				✓
SN	Snipe	BoCC amber listed, localised flocks			✓	✓
SU	Shelduck	BOCC amber listed			✓	✓
SV	Shoveler	BoCC amber listed, scarce breeding species		✓		✓
T.	Teal	BoCC amber listed		✓	✓	✓
TS	Tree sparrow	BoCC red listed, local and scarce		✓	✓	✓
TU	Tufted duck	BoCC amber listed			✓	✓
WK	Woodcock	BoCC amber listed, under-recorded		✓	✓	✓
WN	Wigeon	BoCC amber listed		✓		✓
WT	Willow tit	BoCC red listed, localised and very scarce		✓	✓	✓

^{*} Birds of Conservation Concern, which are declining moderately. Eaton, M.A., Brown, A.F., Noble, D.G., Musgrove, A.J., Hearn, R., Aebischer, N.J., Gibbons, D.W., Evans, A. and Gregory, R.D. (2009) Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. British Birds 102, pp296-341.

** Birds of Conservation Concern, which are severely decline. Easton et al (2009).

EC-09 - Legend

EC-09 - Wintering and Passage
Birds - Protected and Notable
Species Legend

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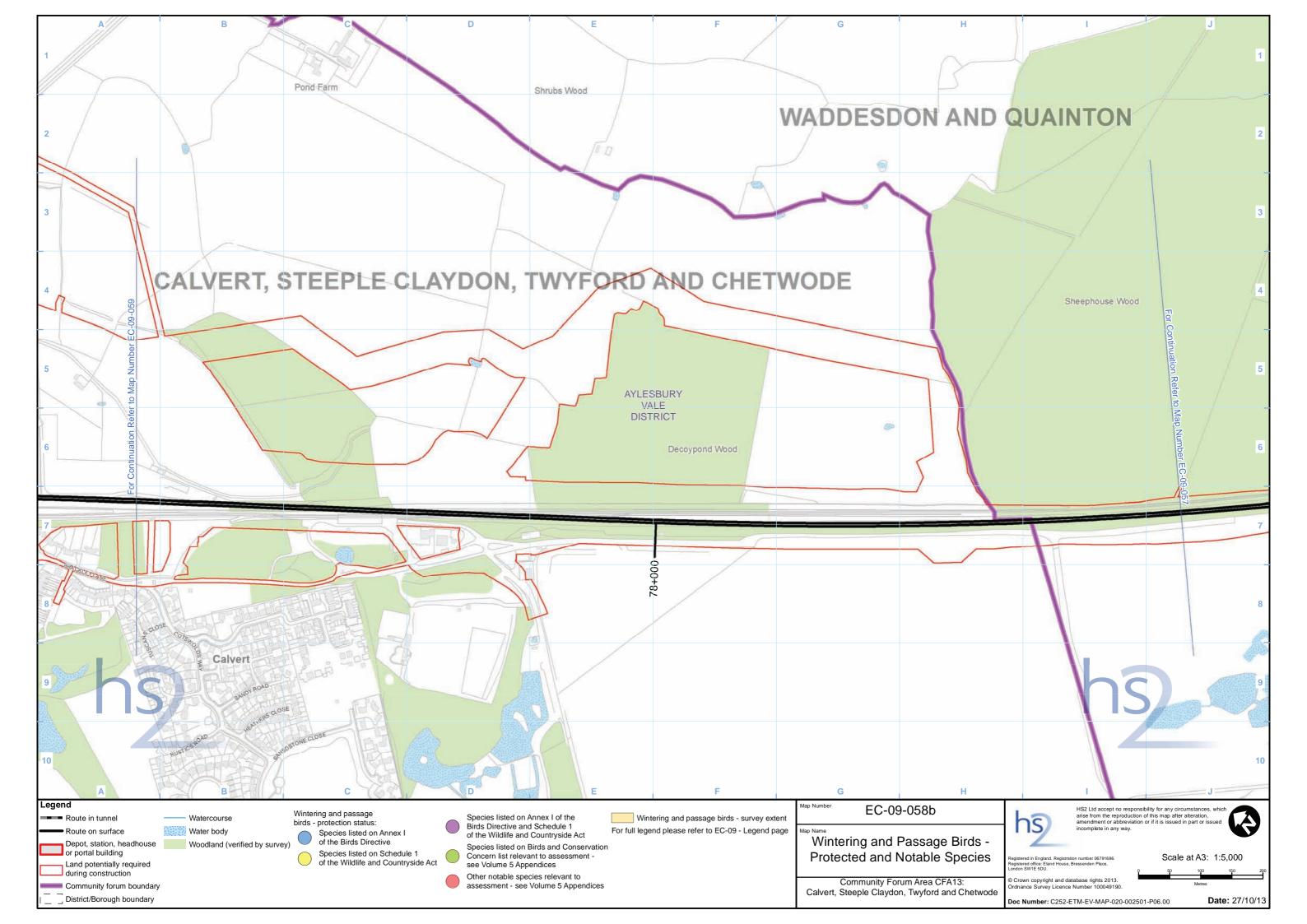
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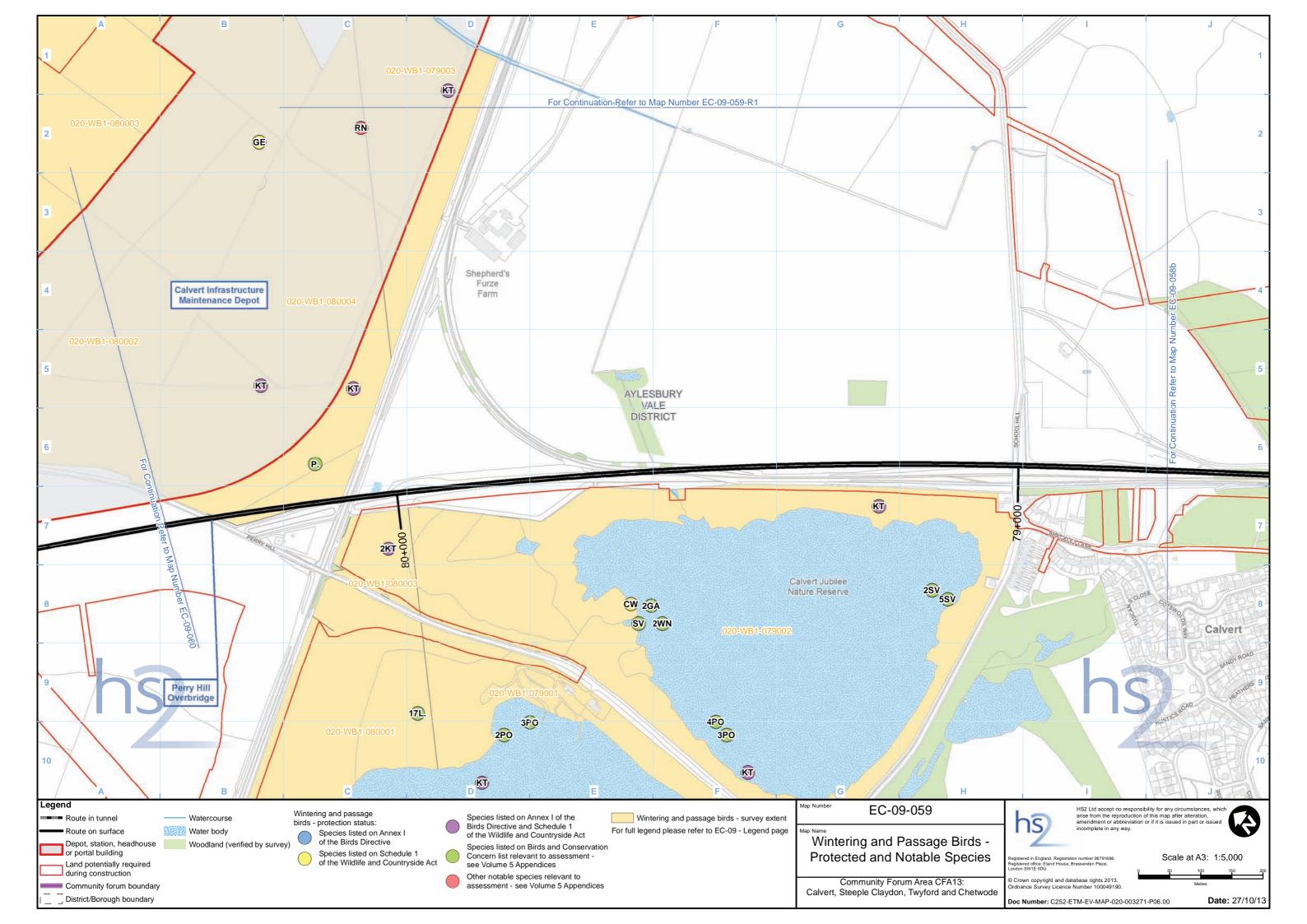
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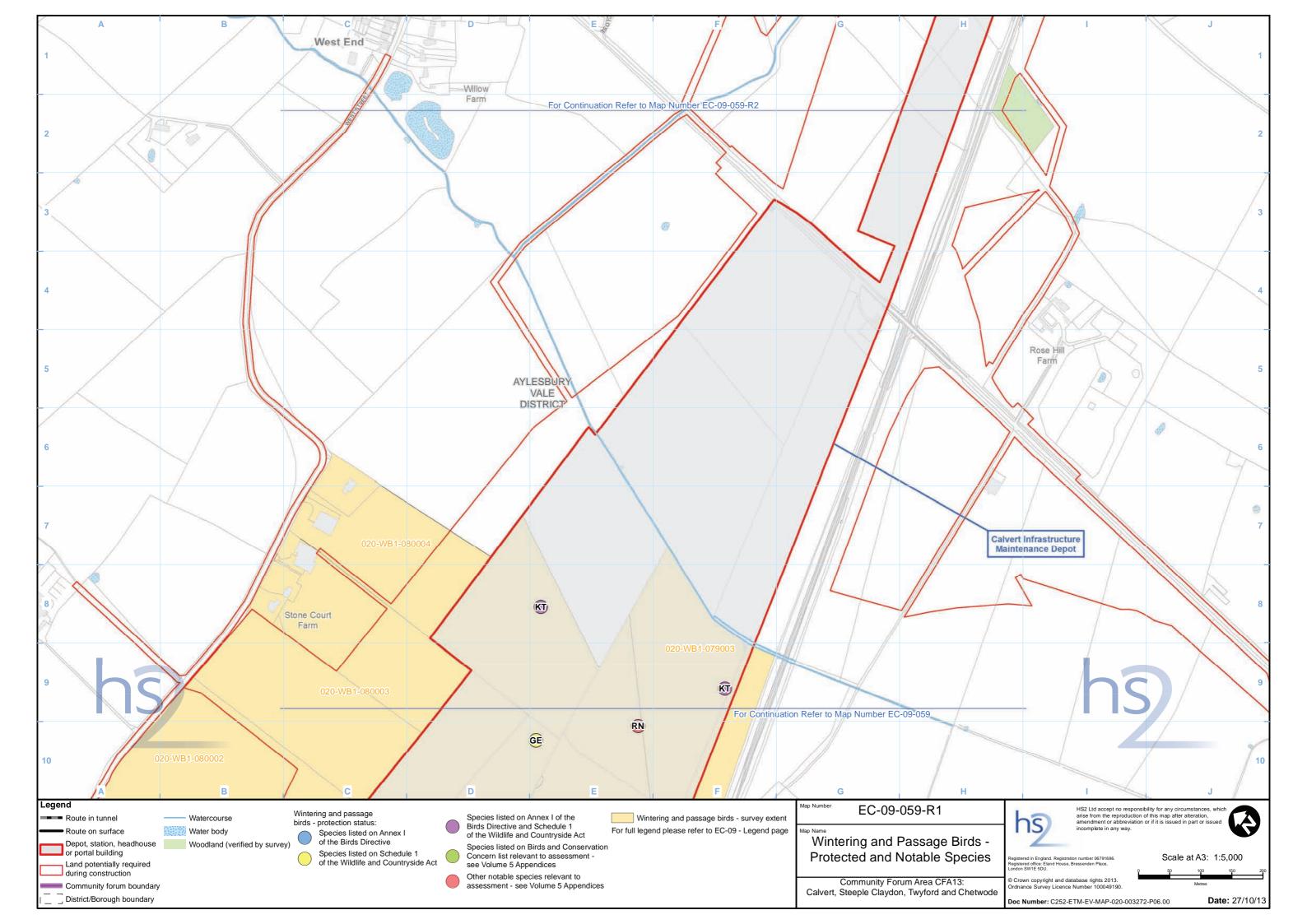
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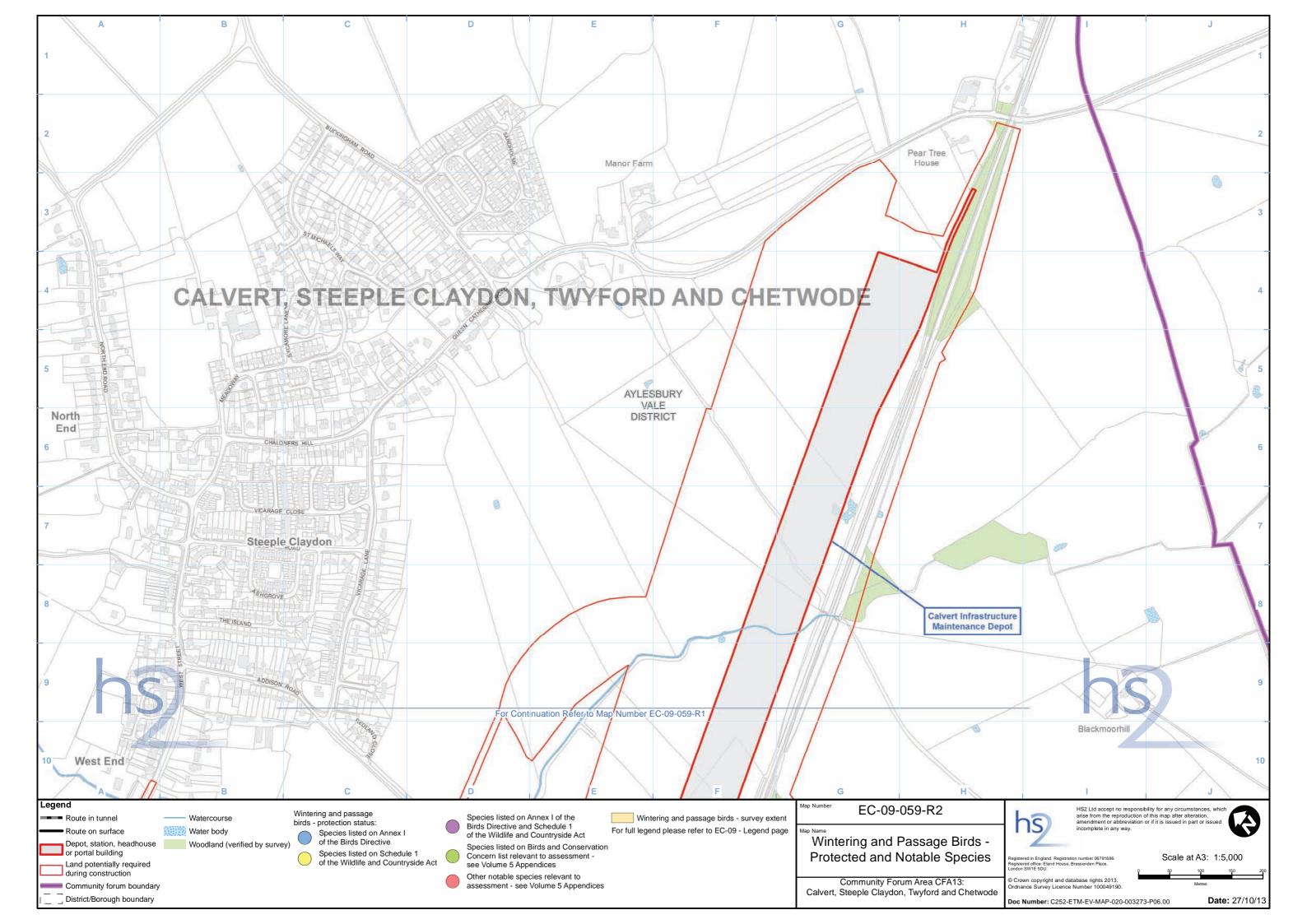
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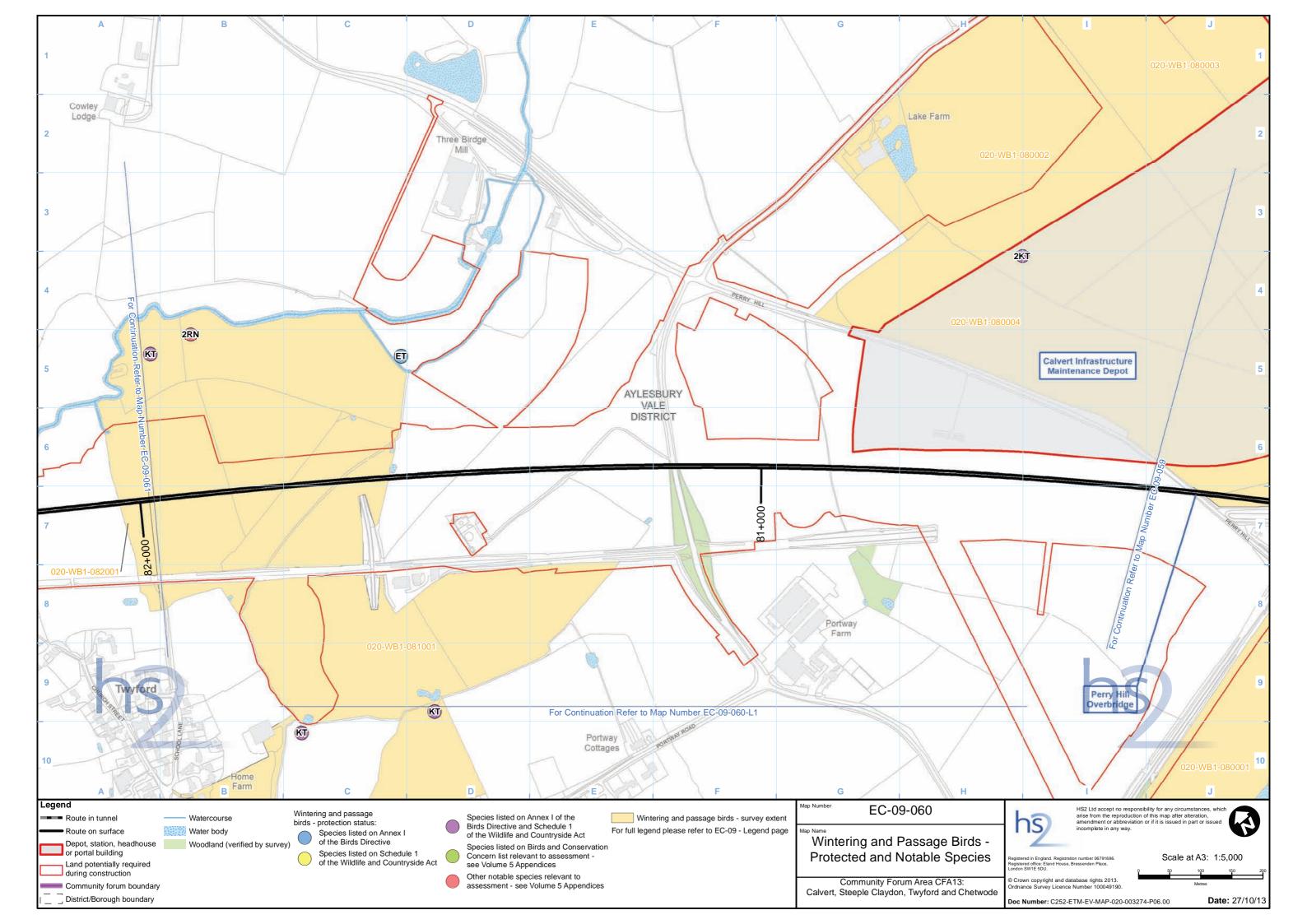
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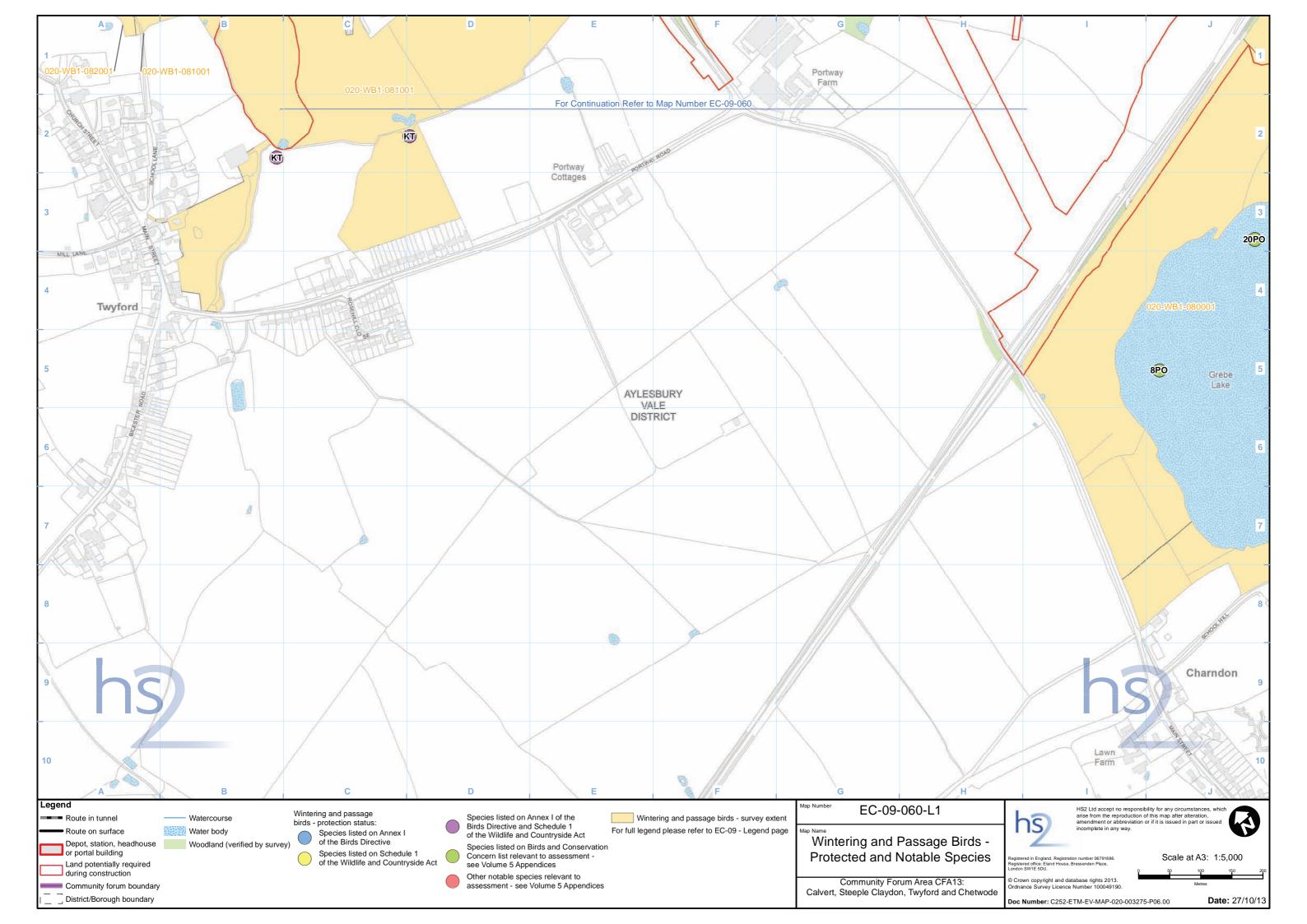


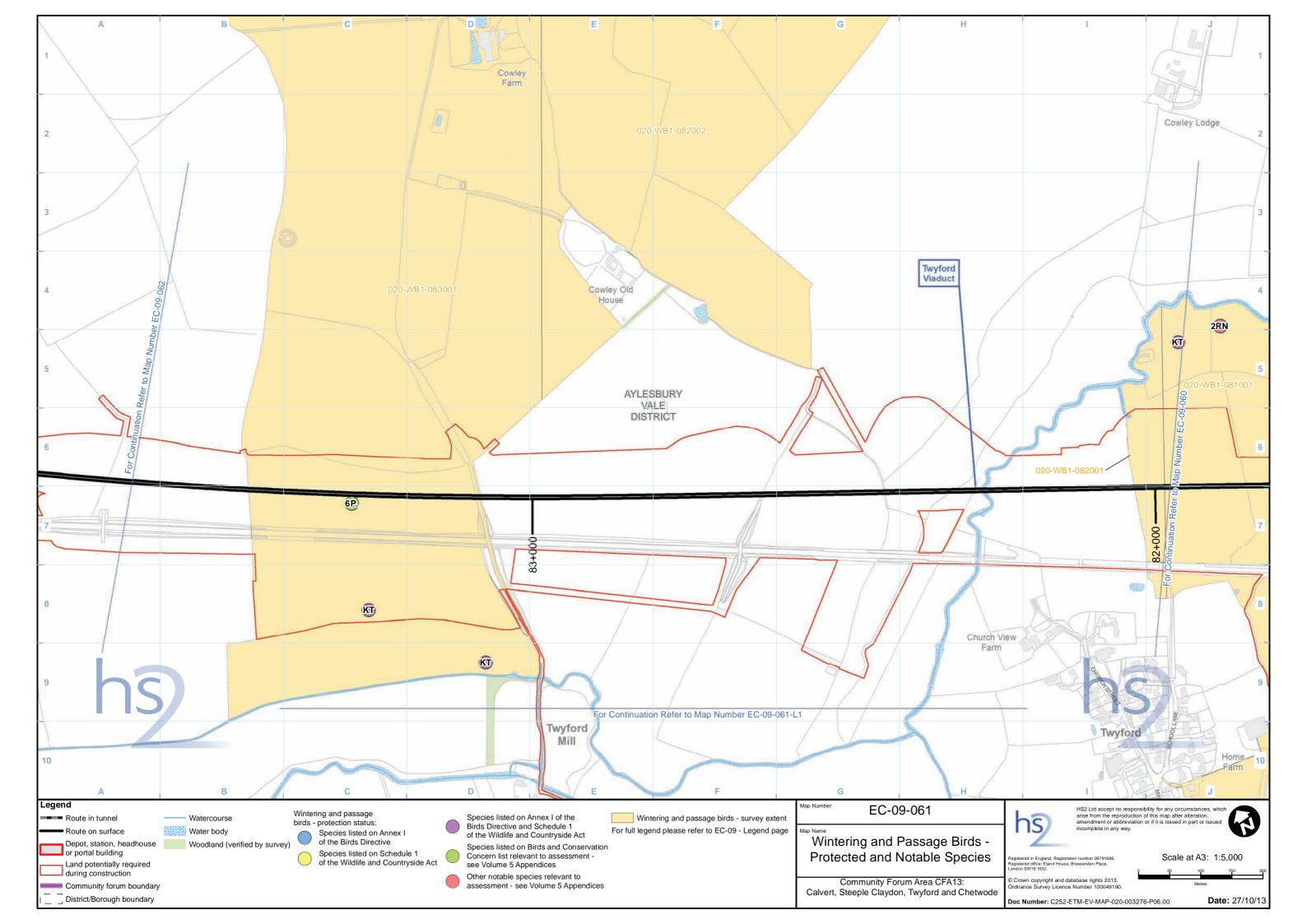


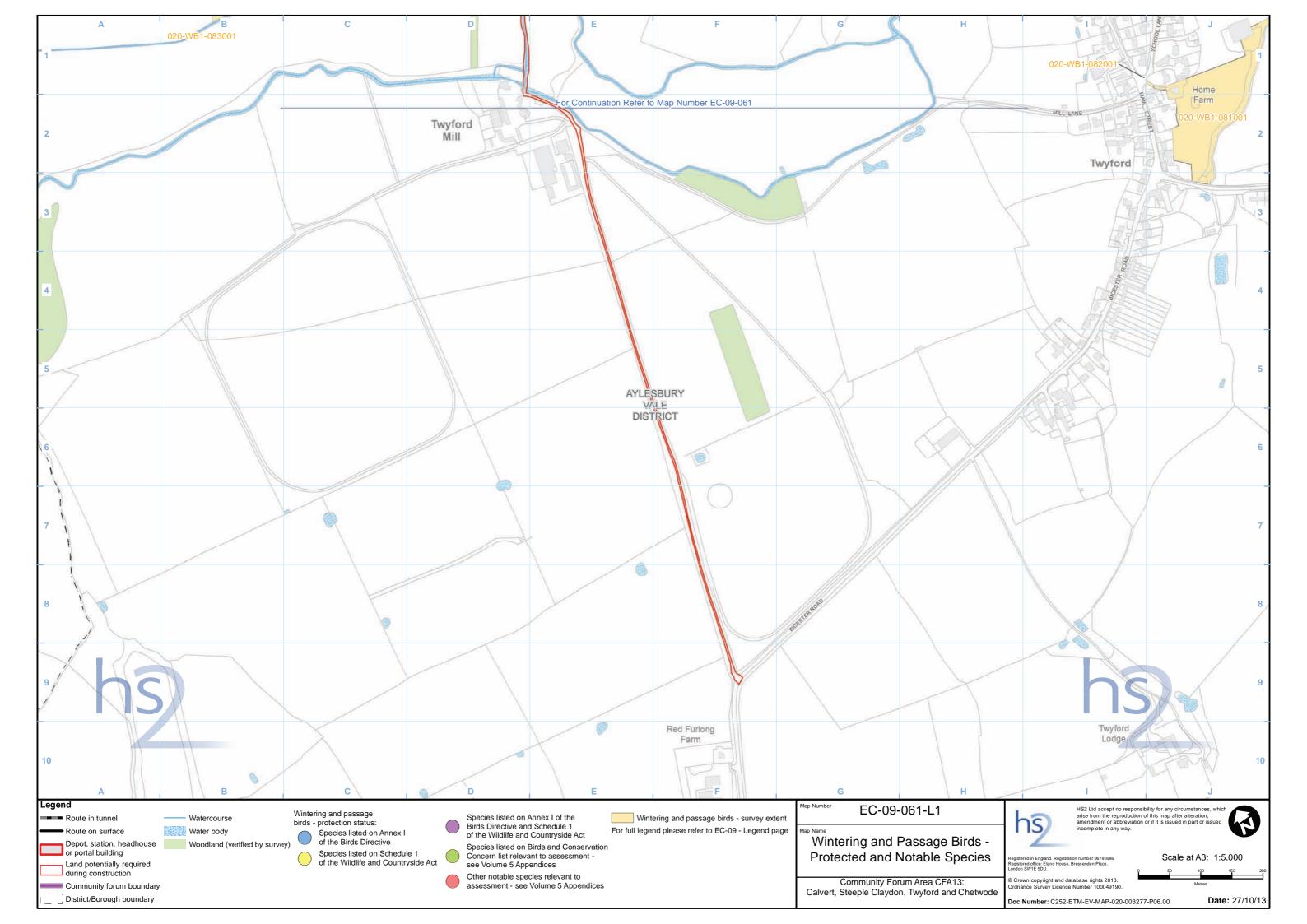


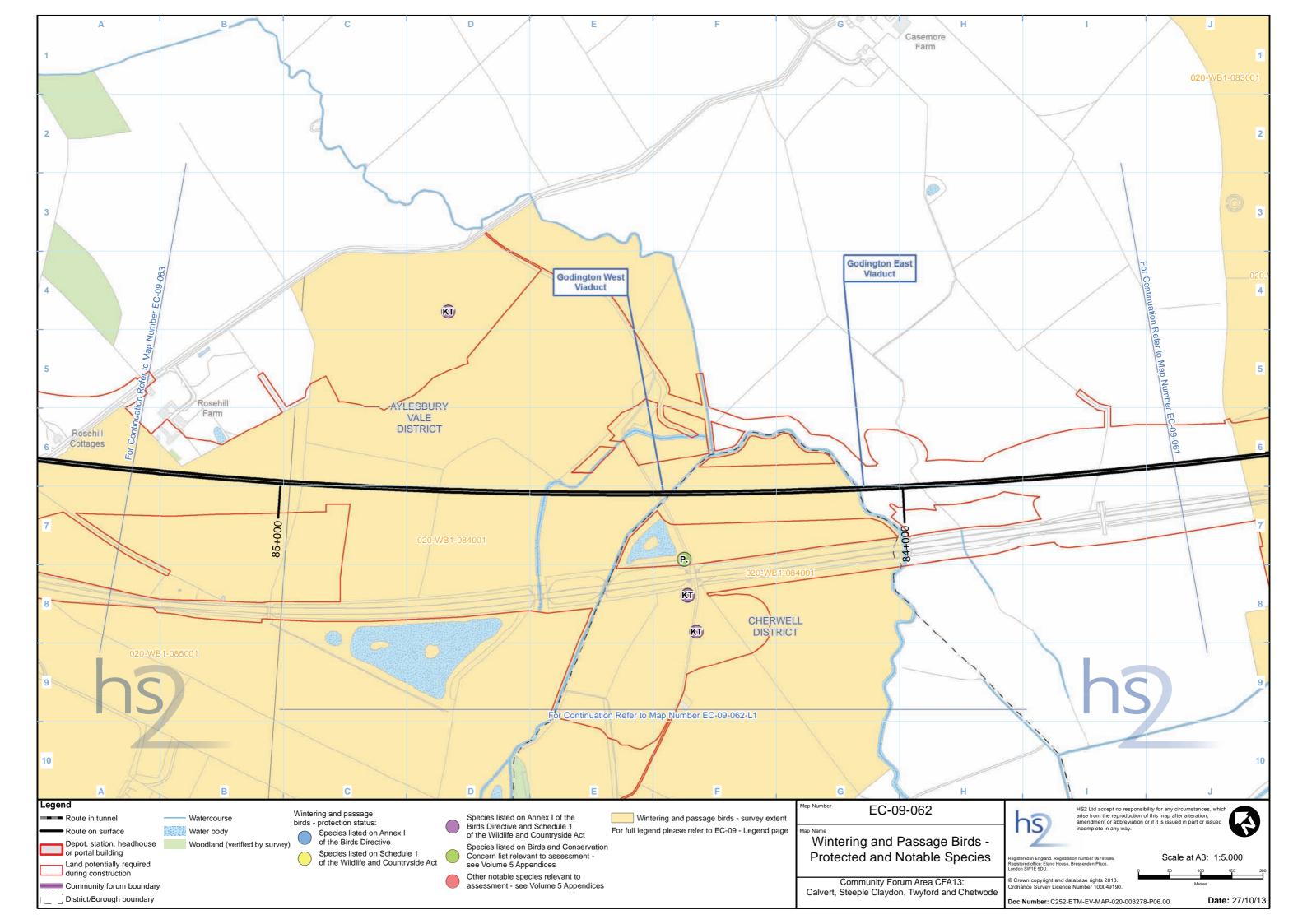


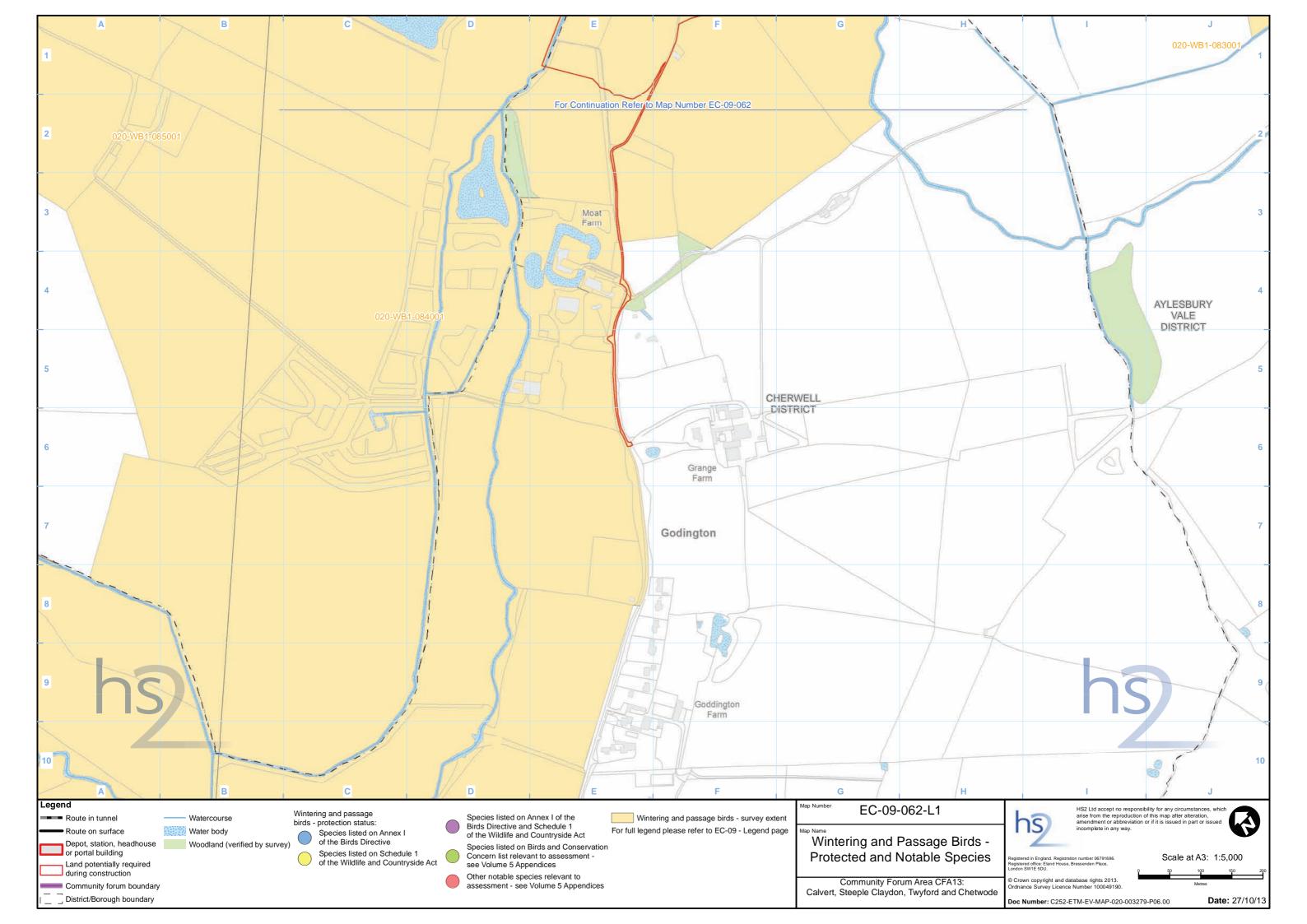


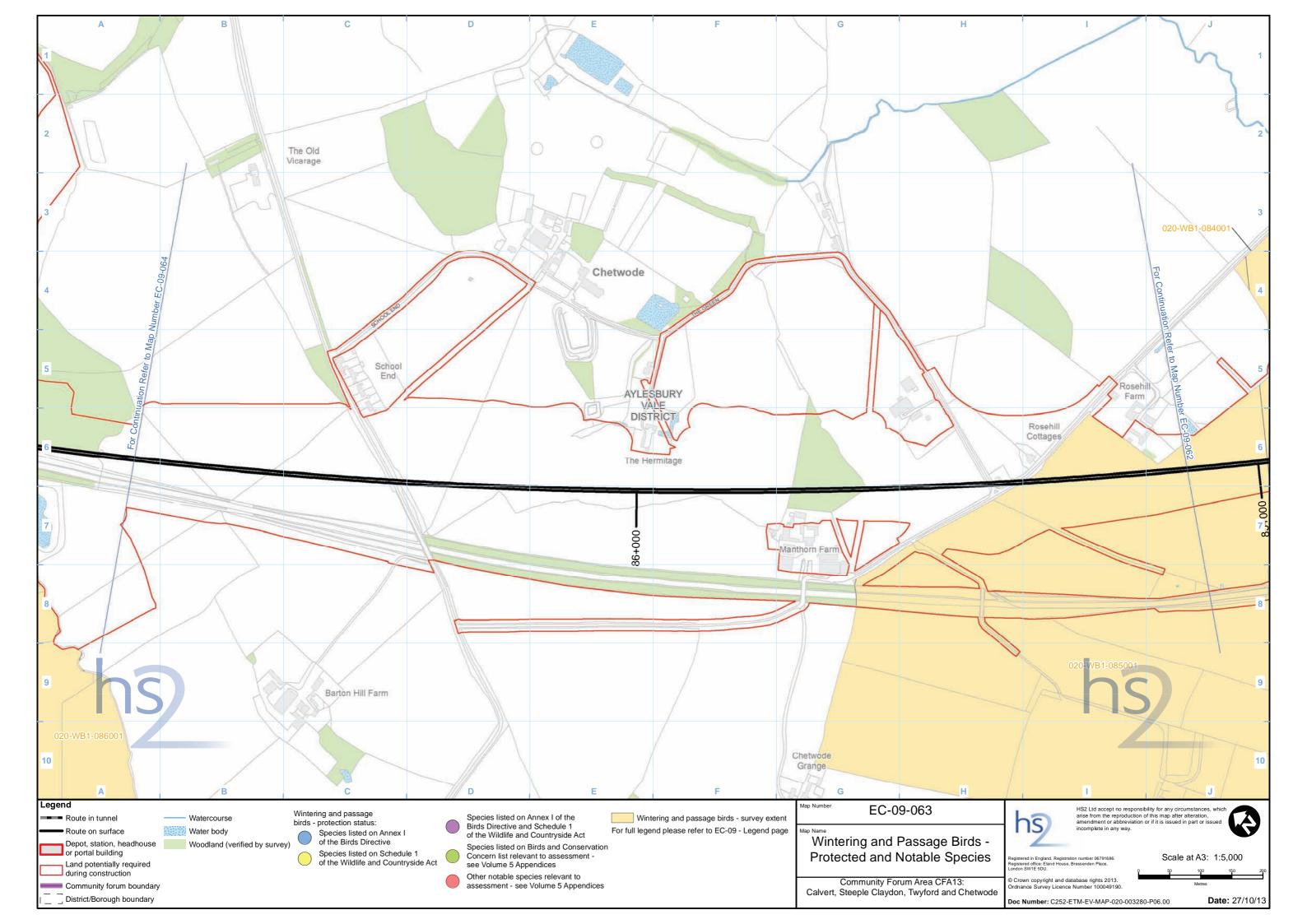


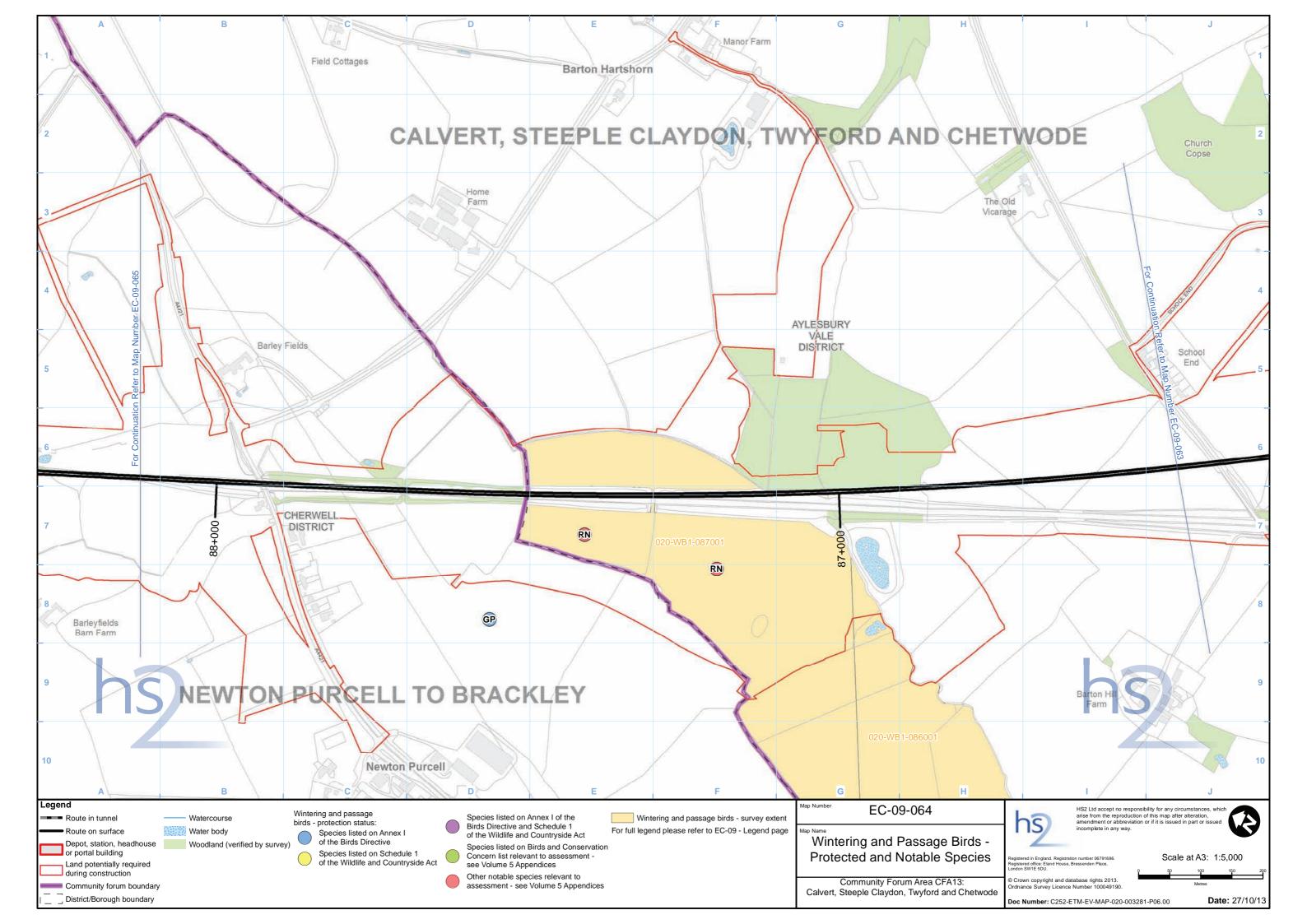










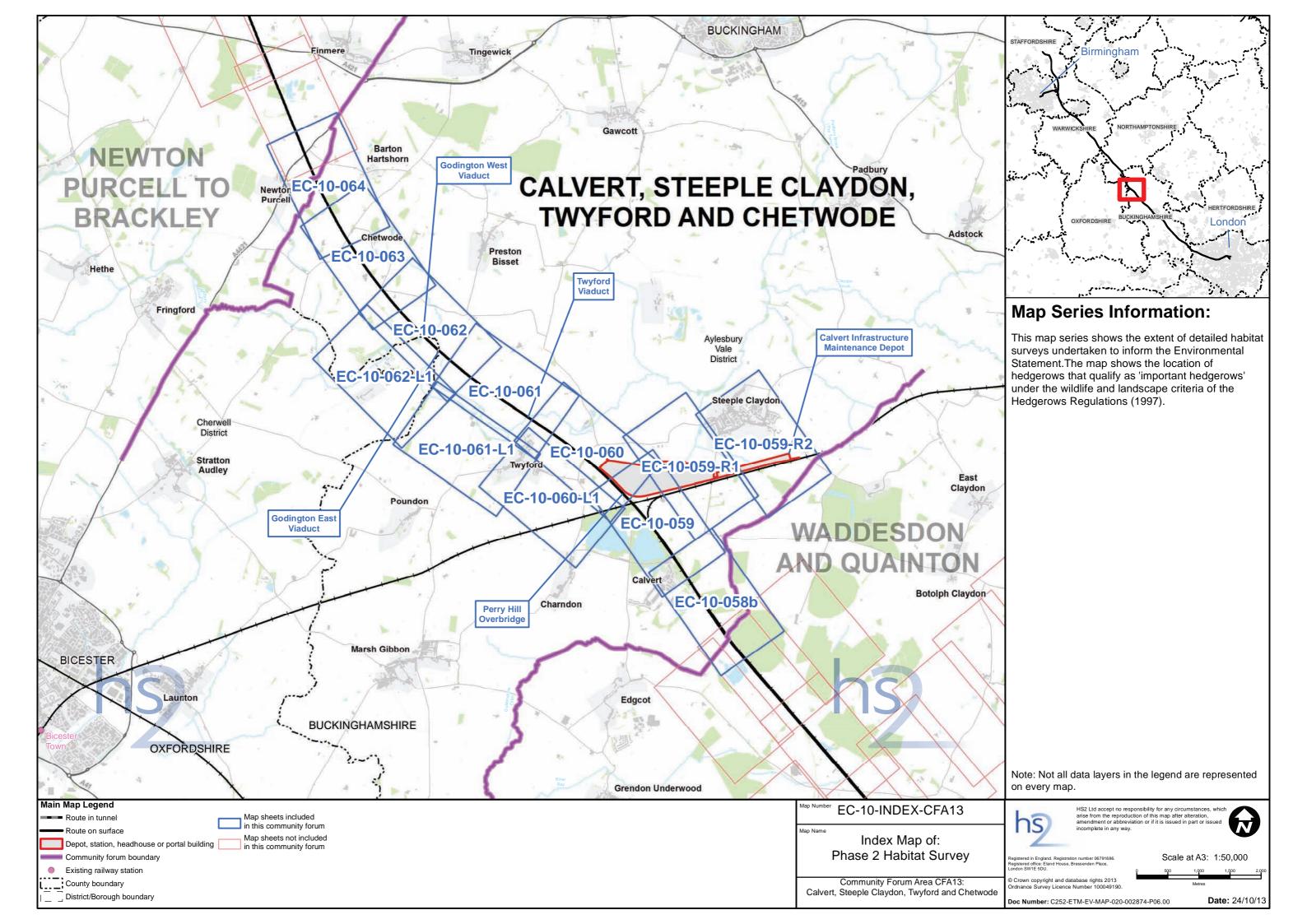


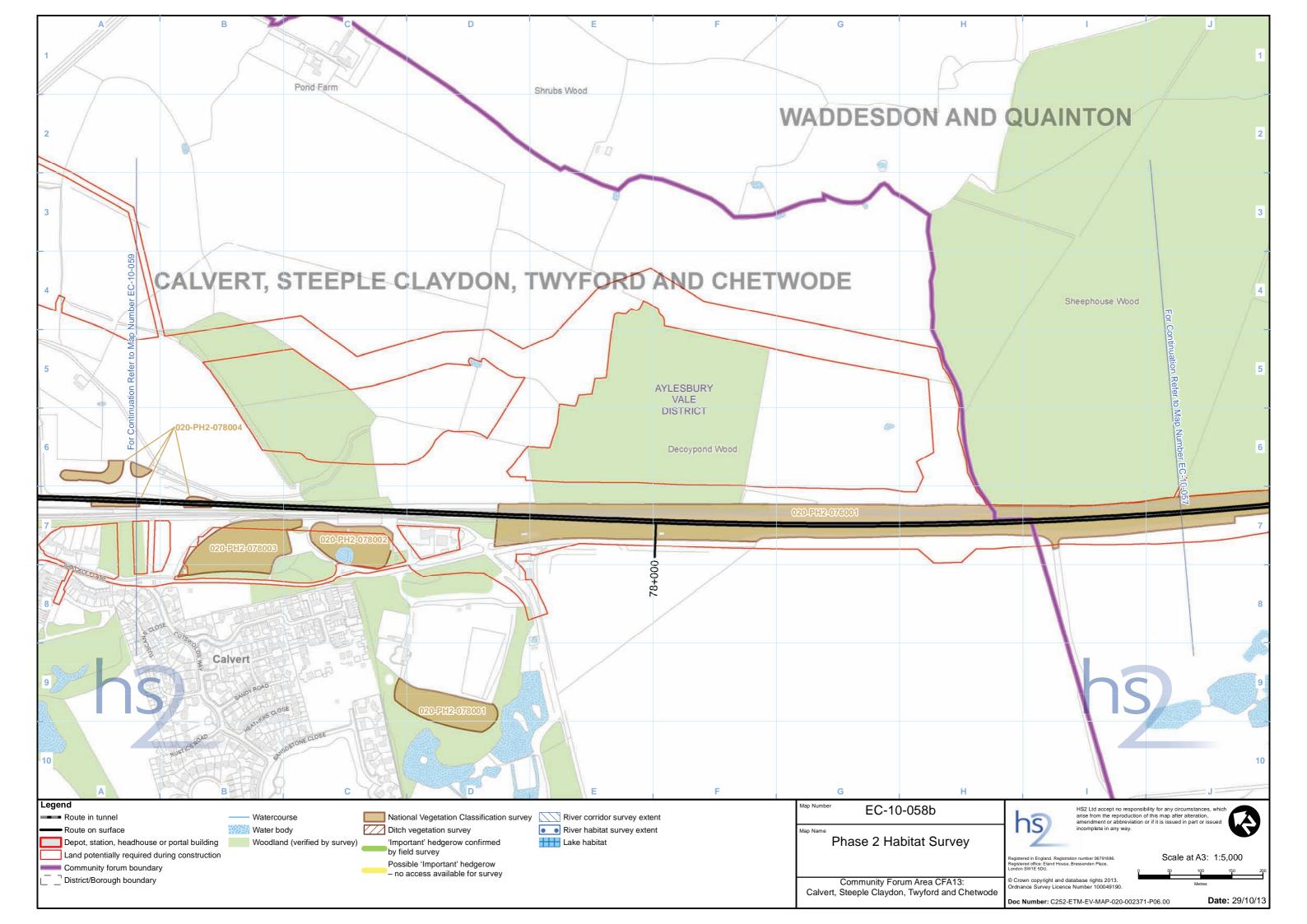
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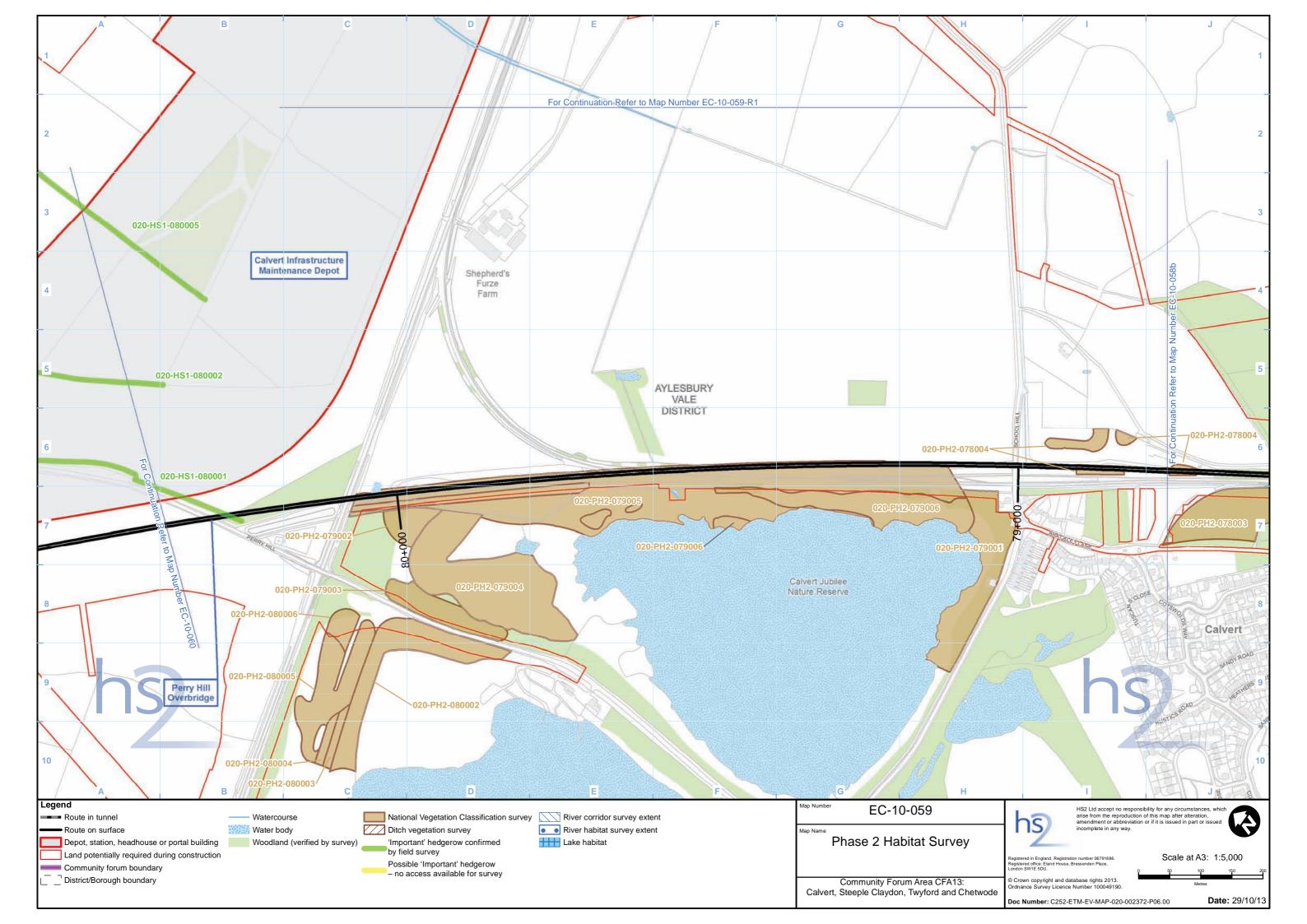


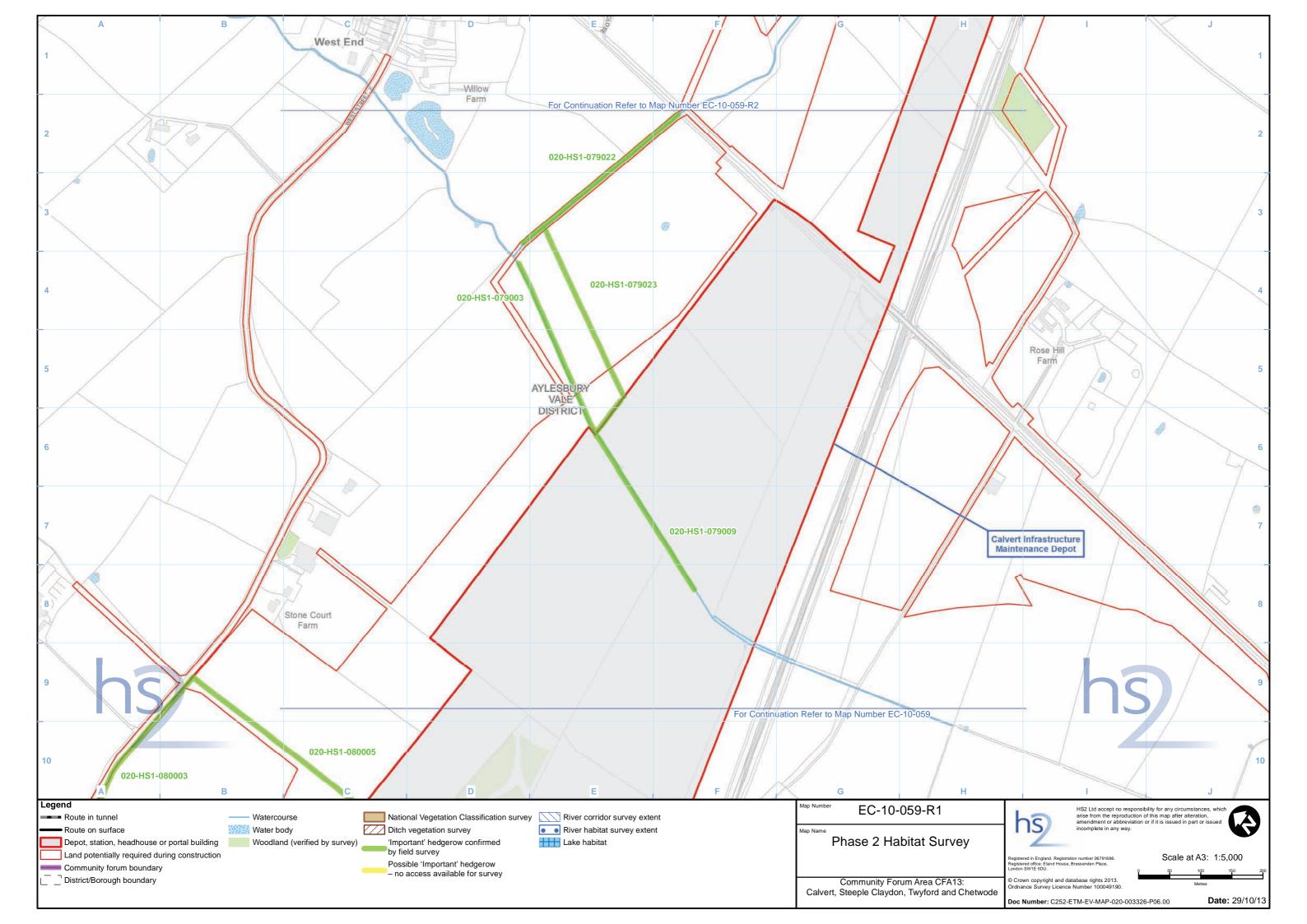
LONDON-WEST MIDLANDS ENVIRONMENTAL STATEMENT

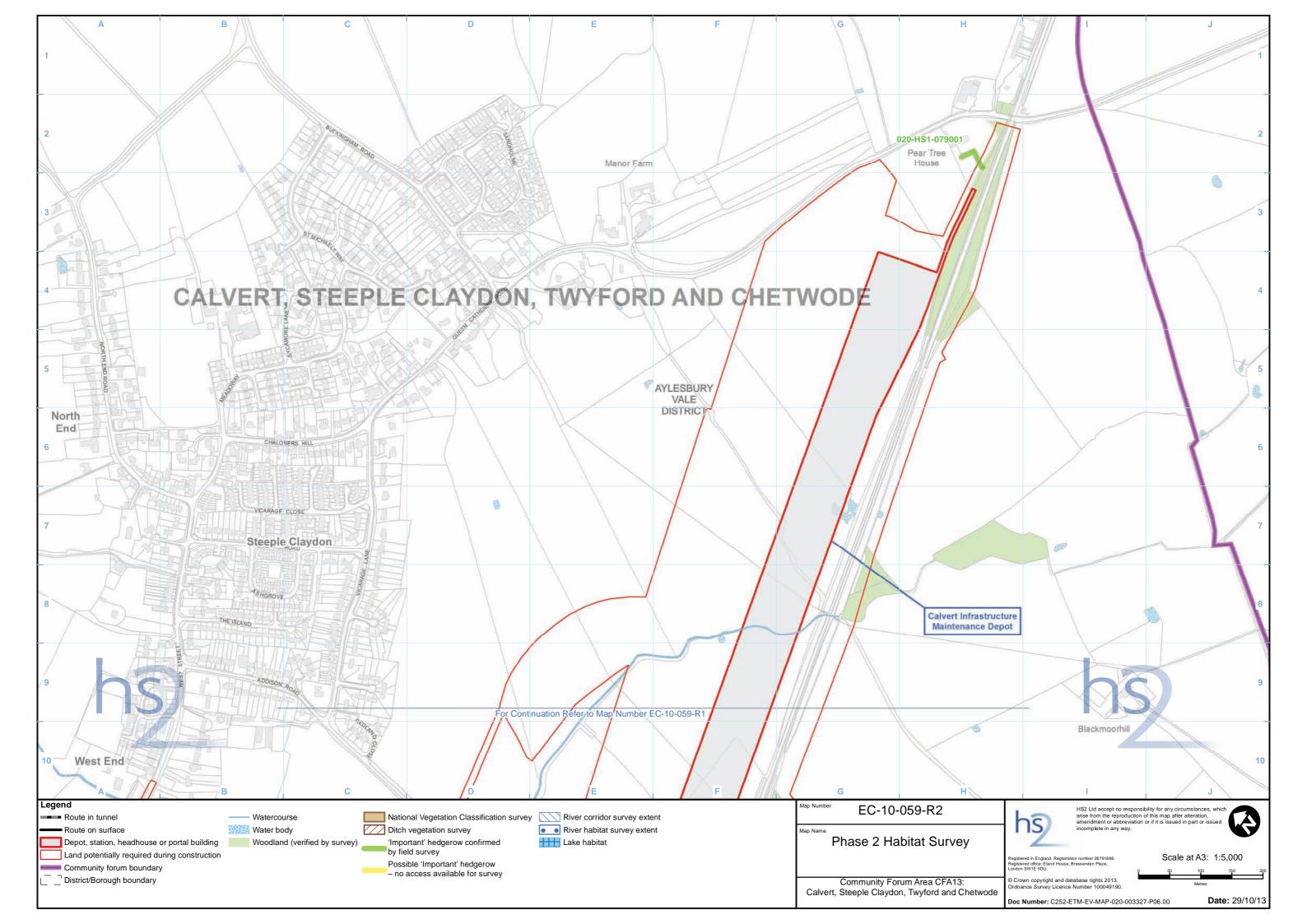
EC-10 – Phase 2 Habitat Survey

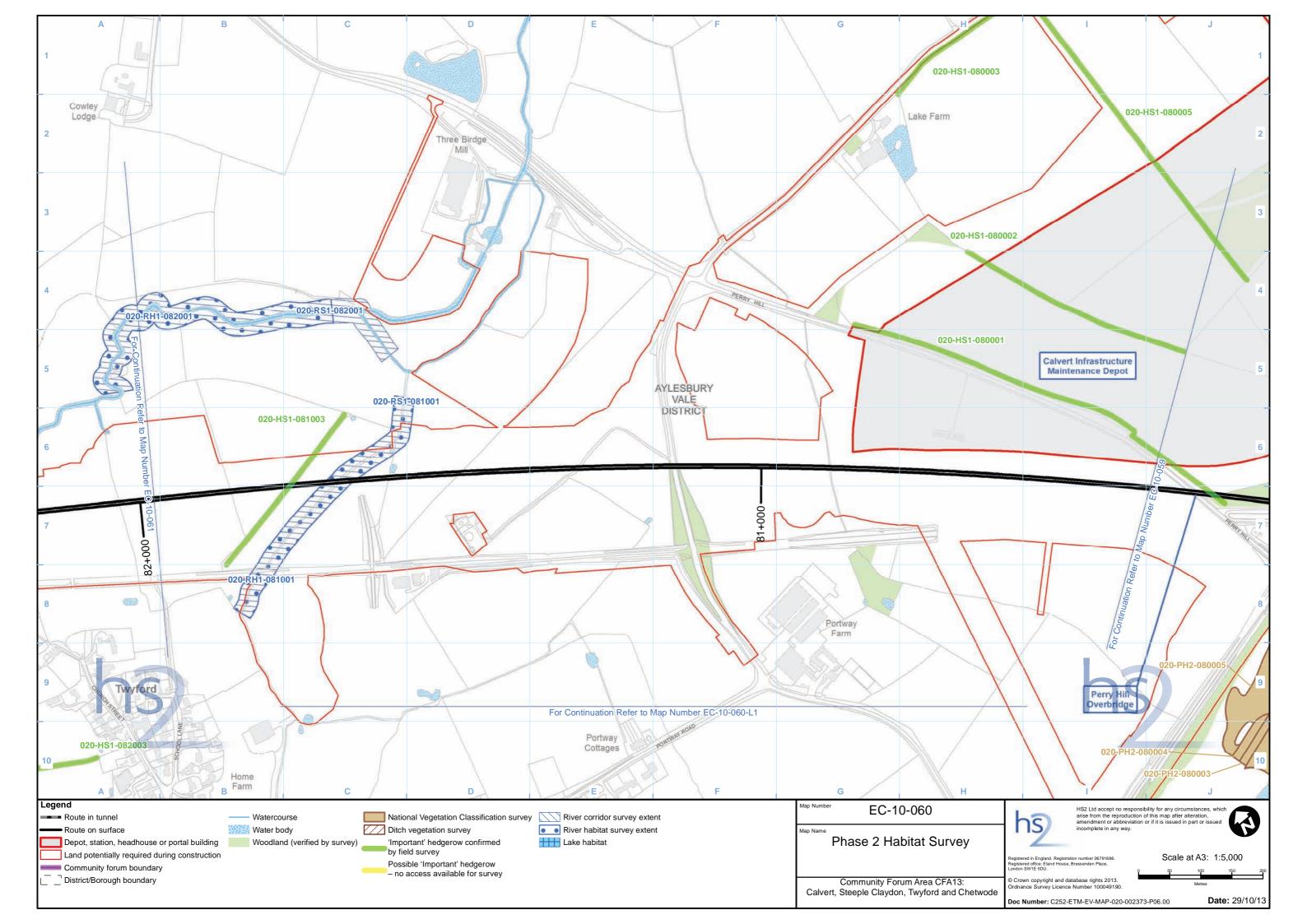


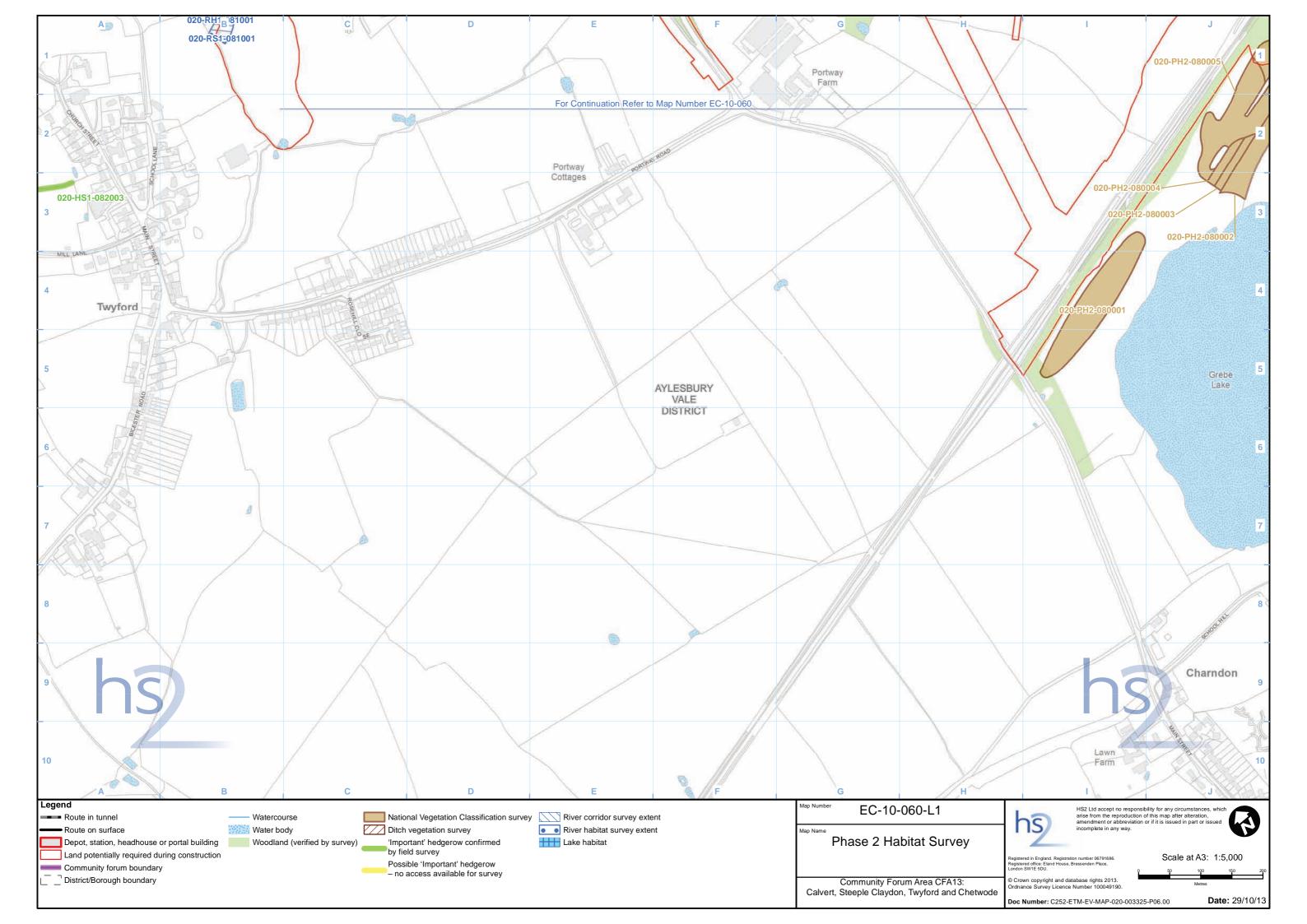


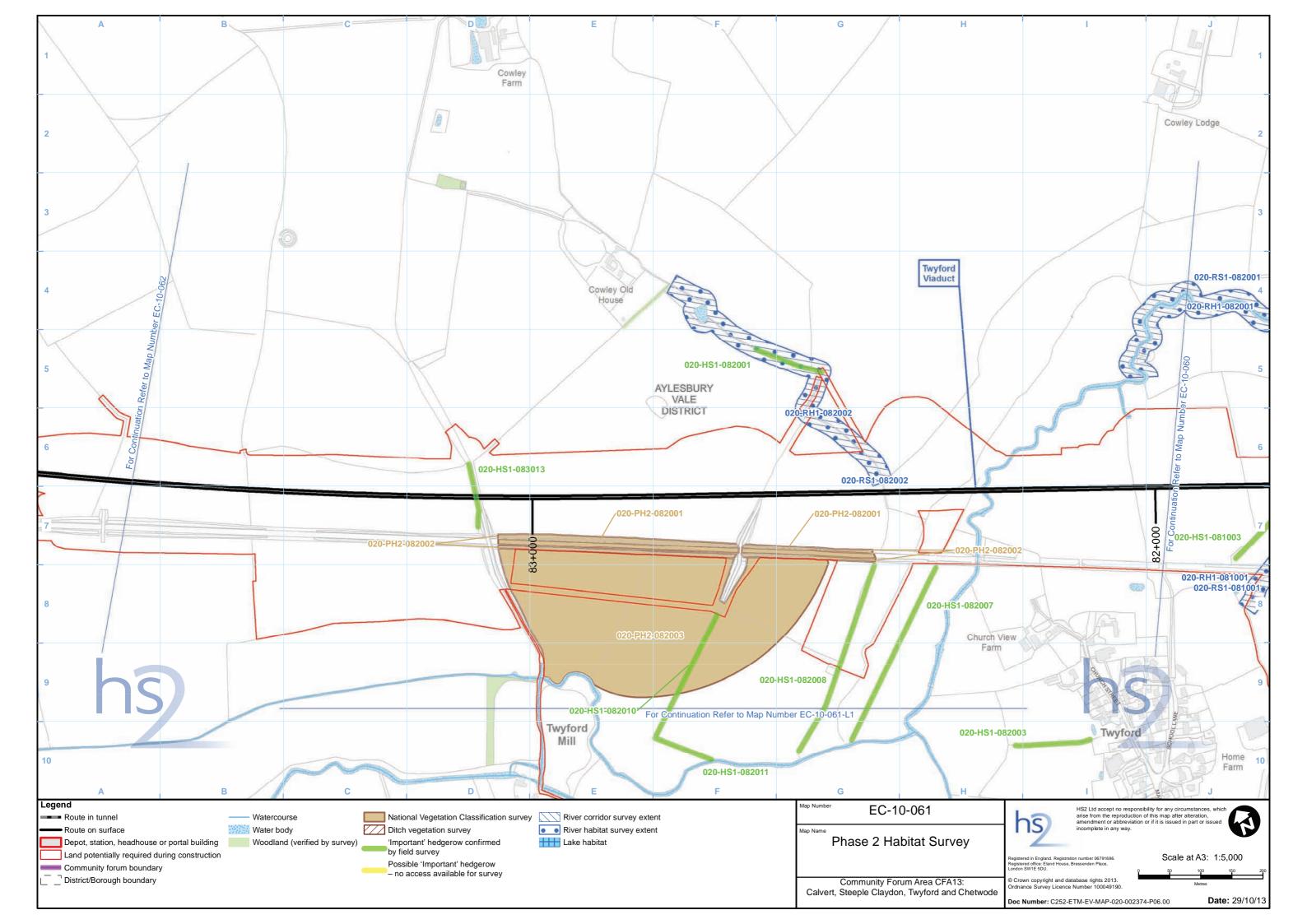


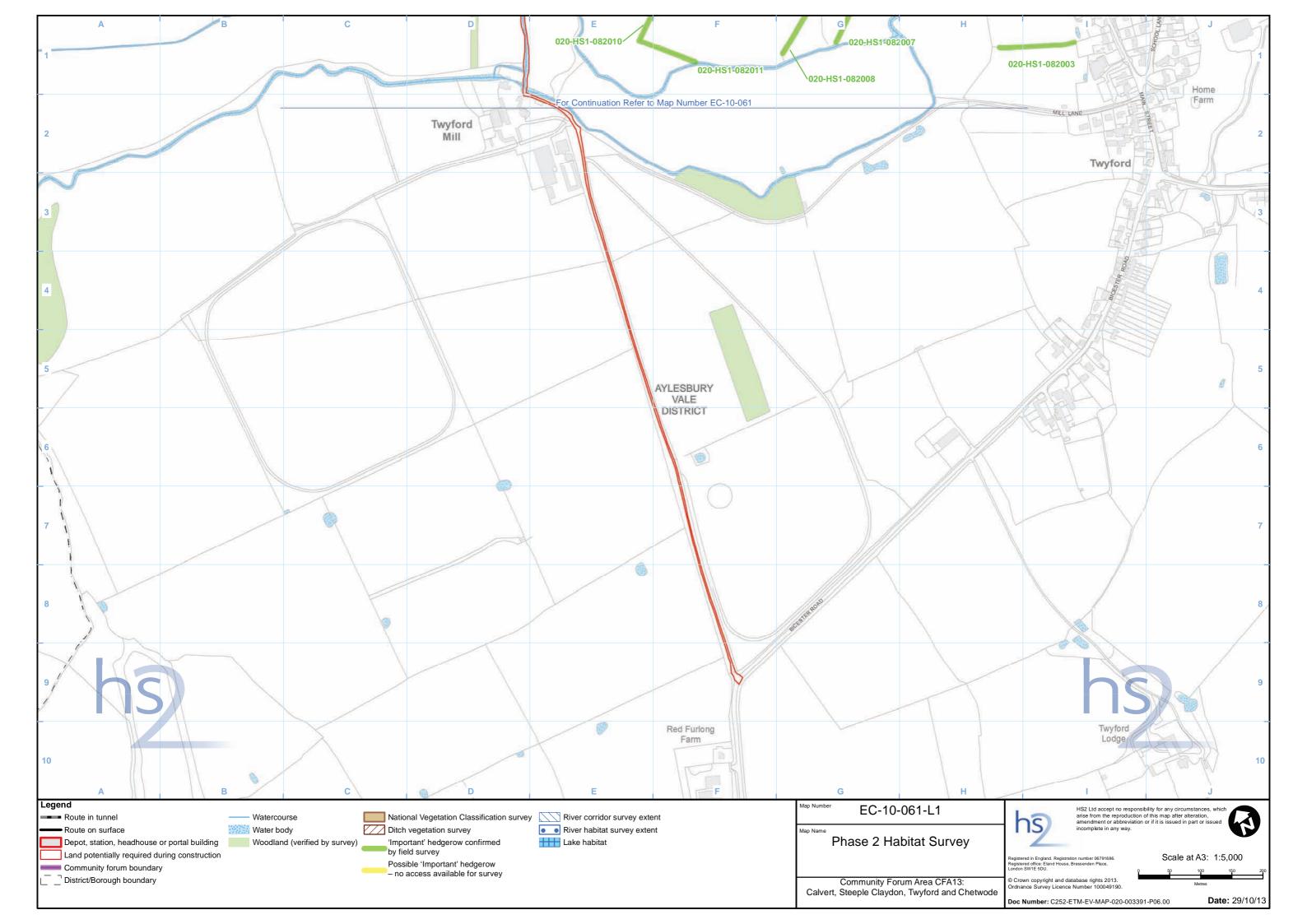


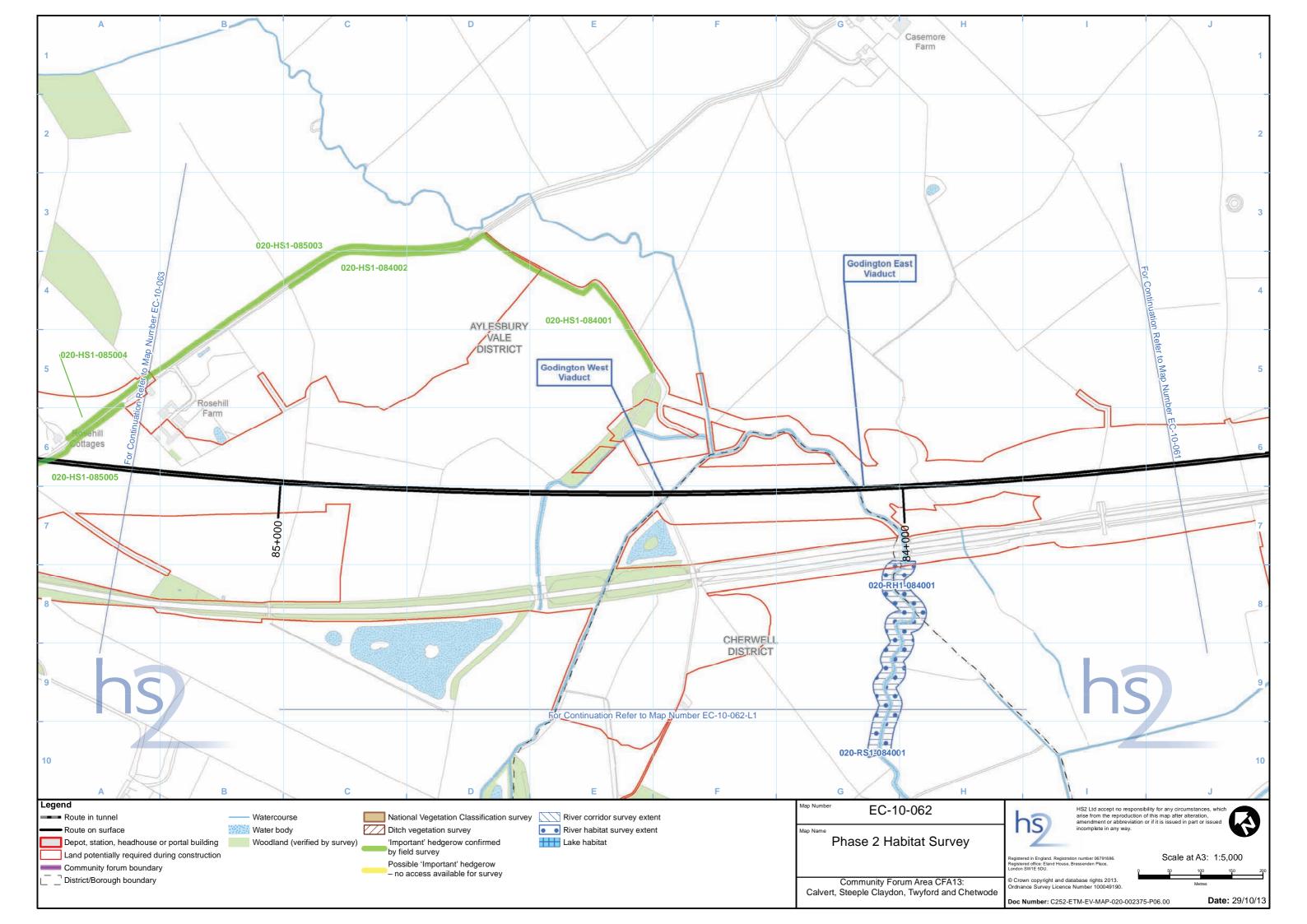


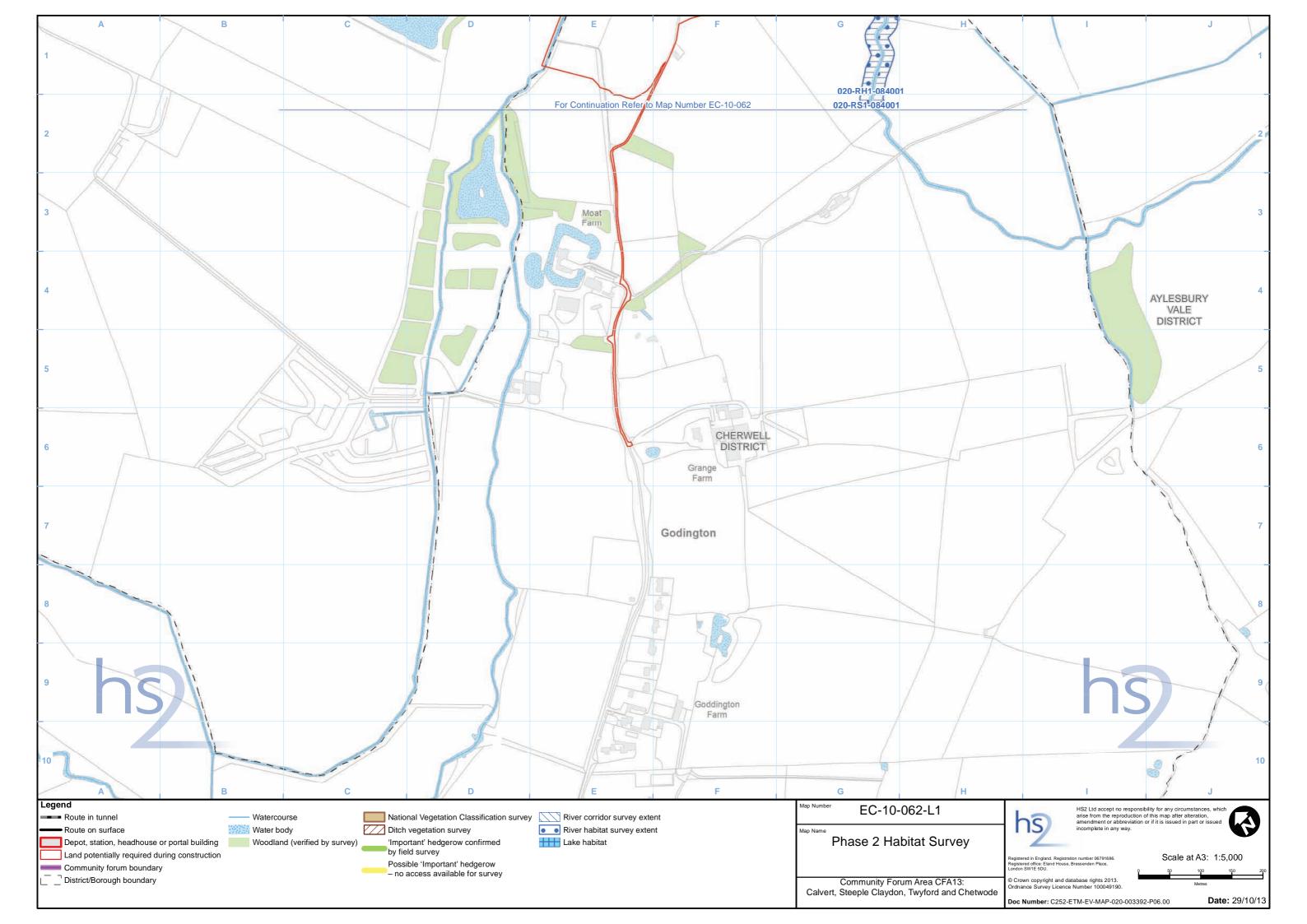


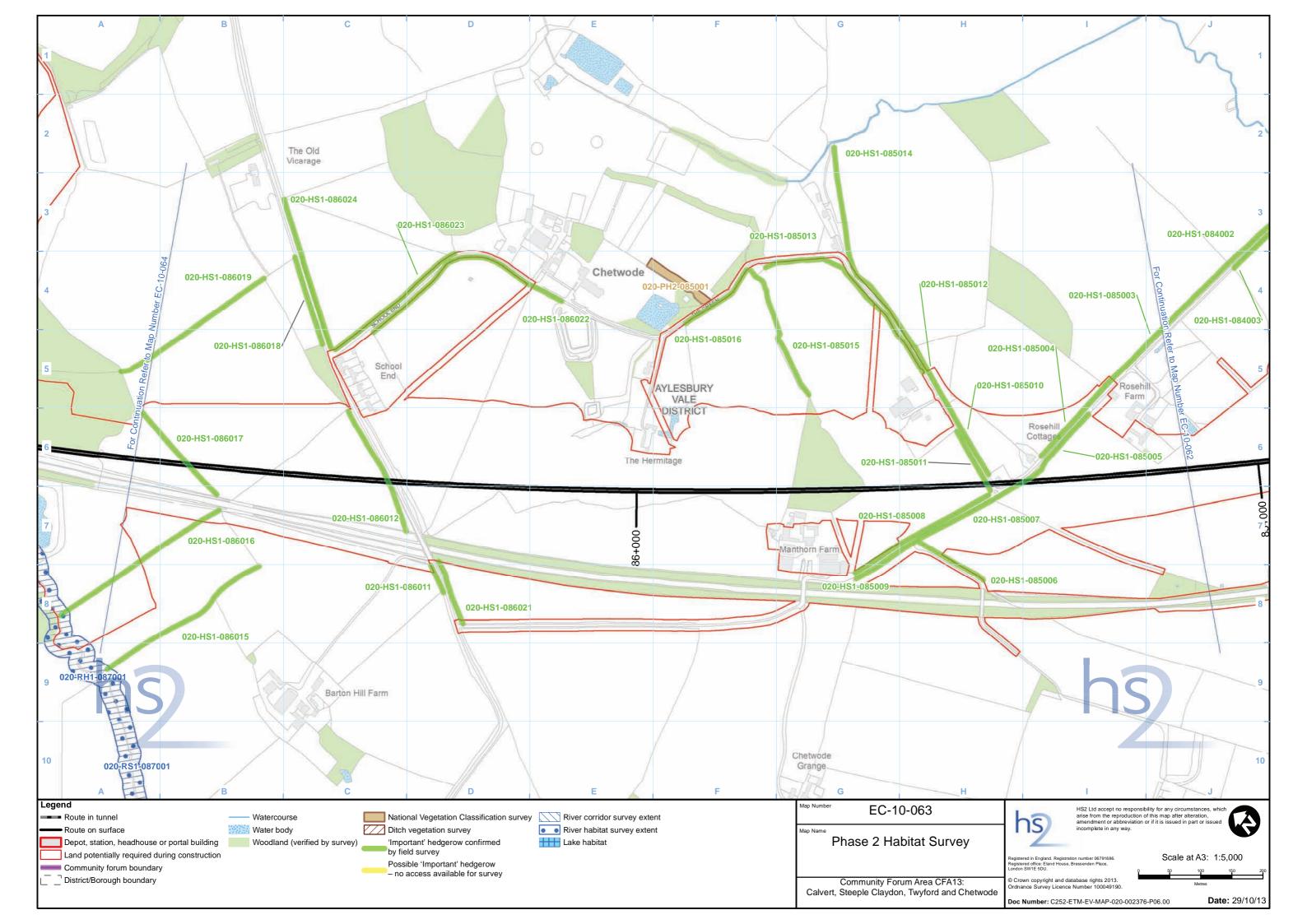


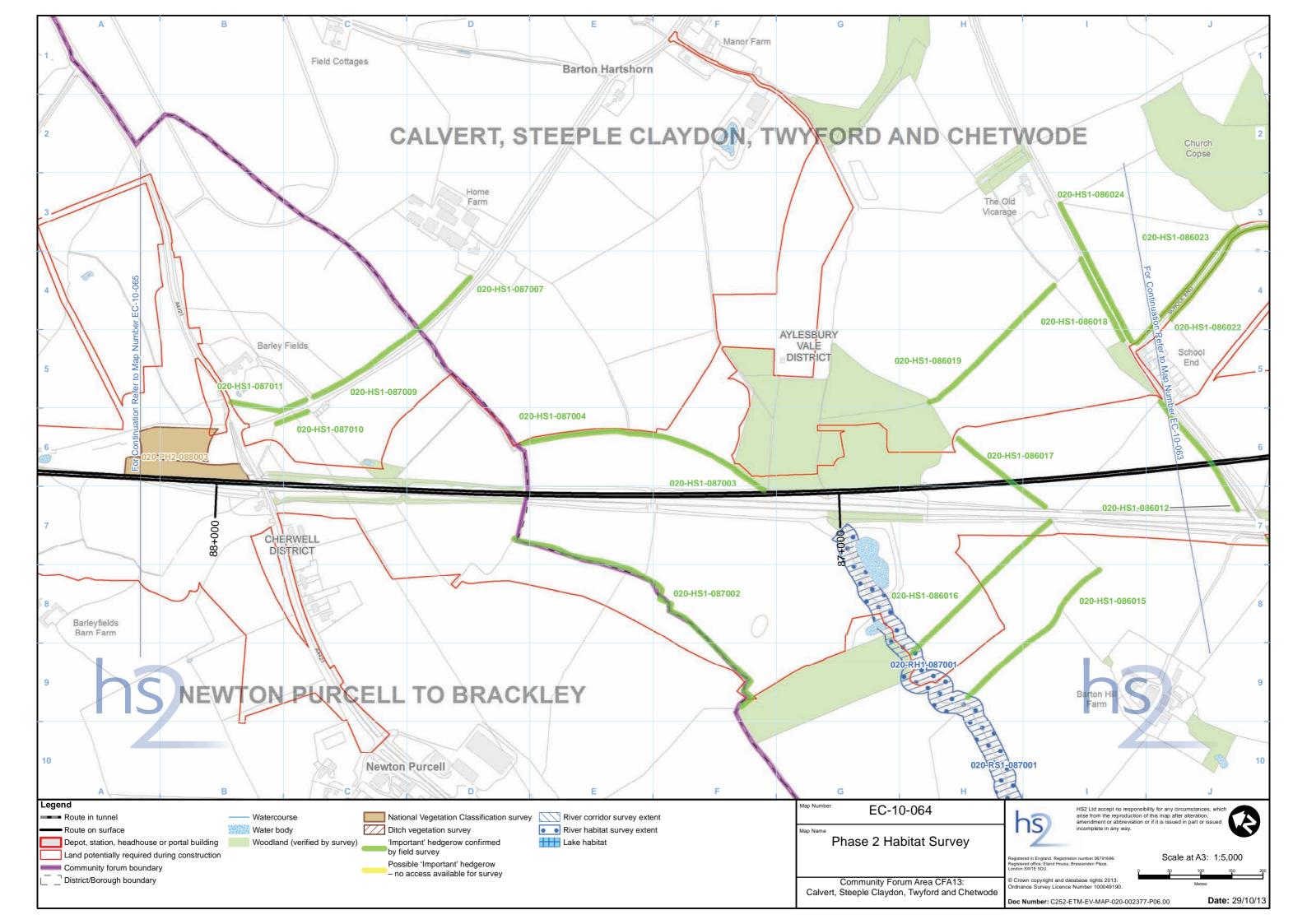








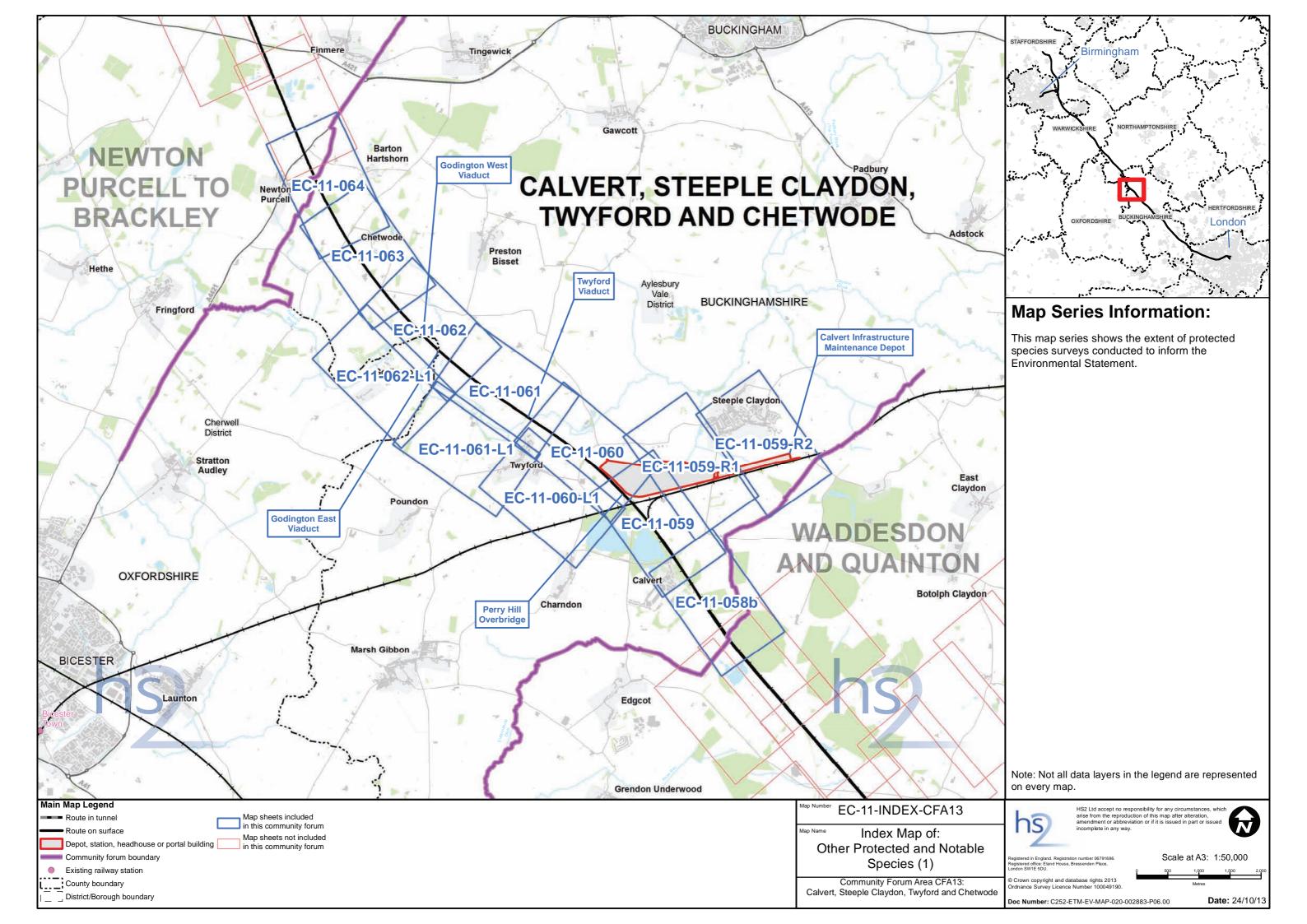


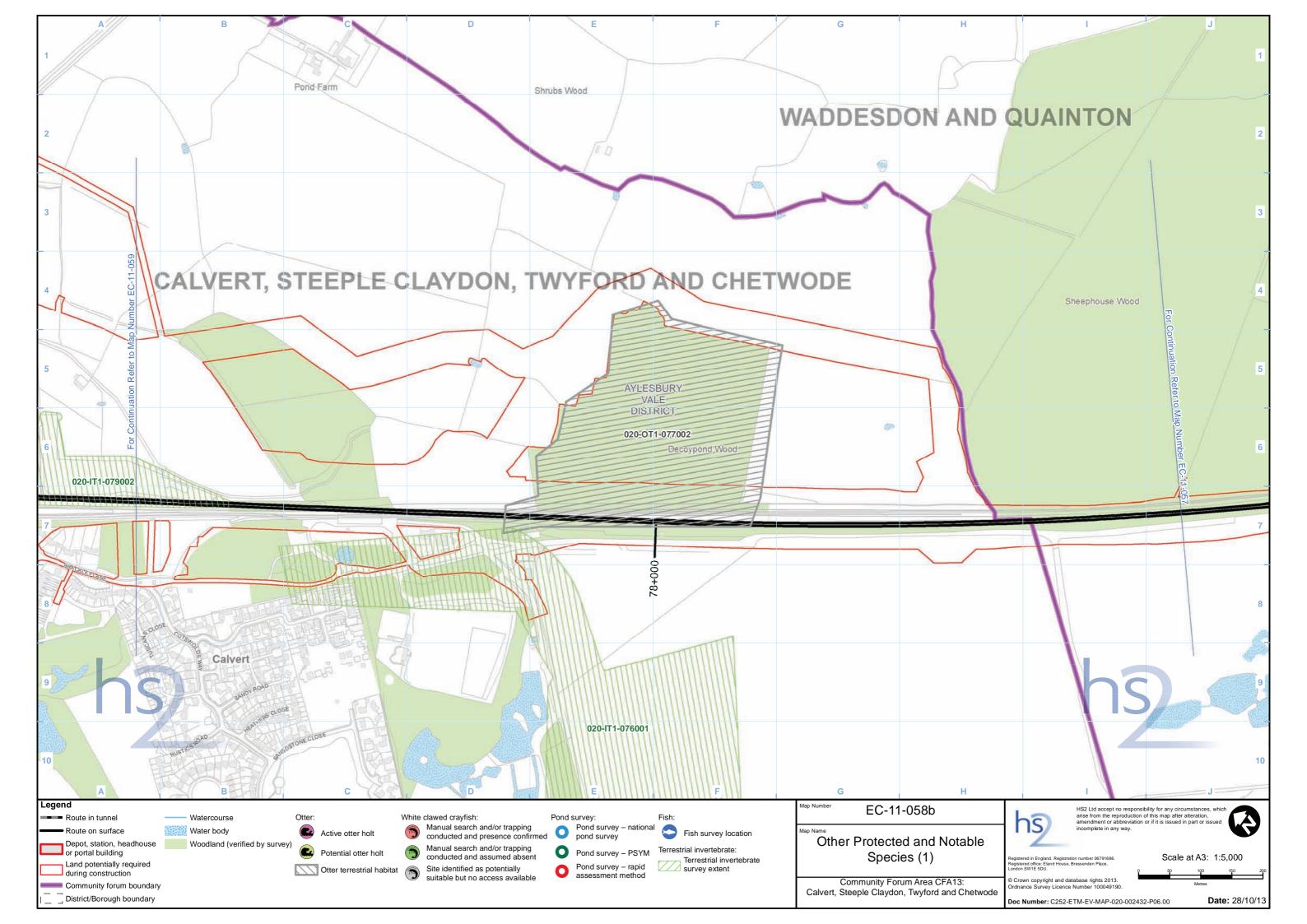


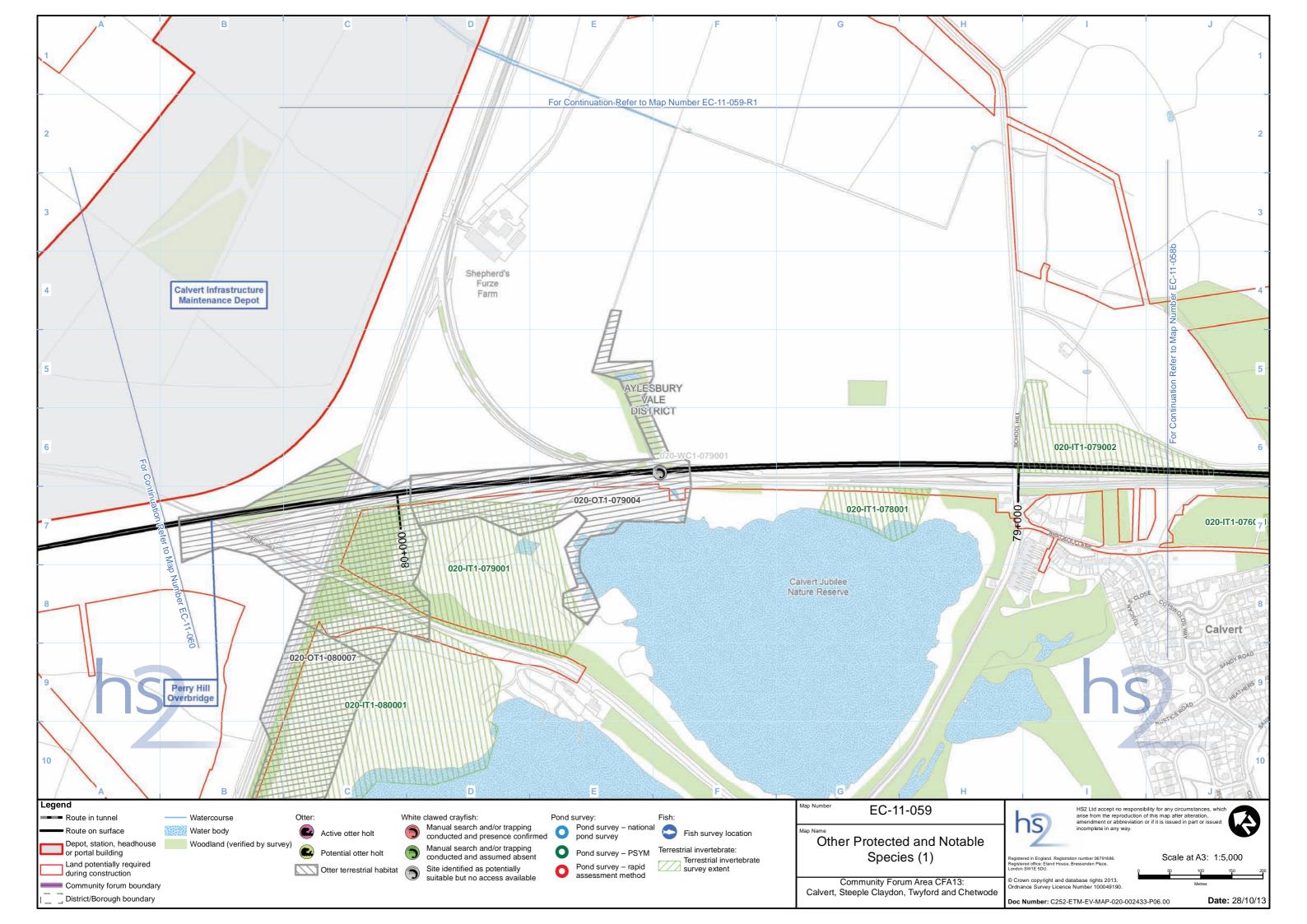


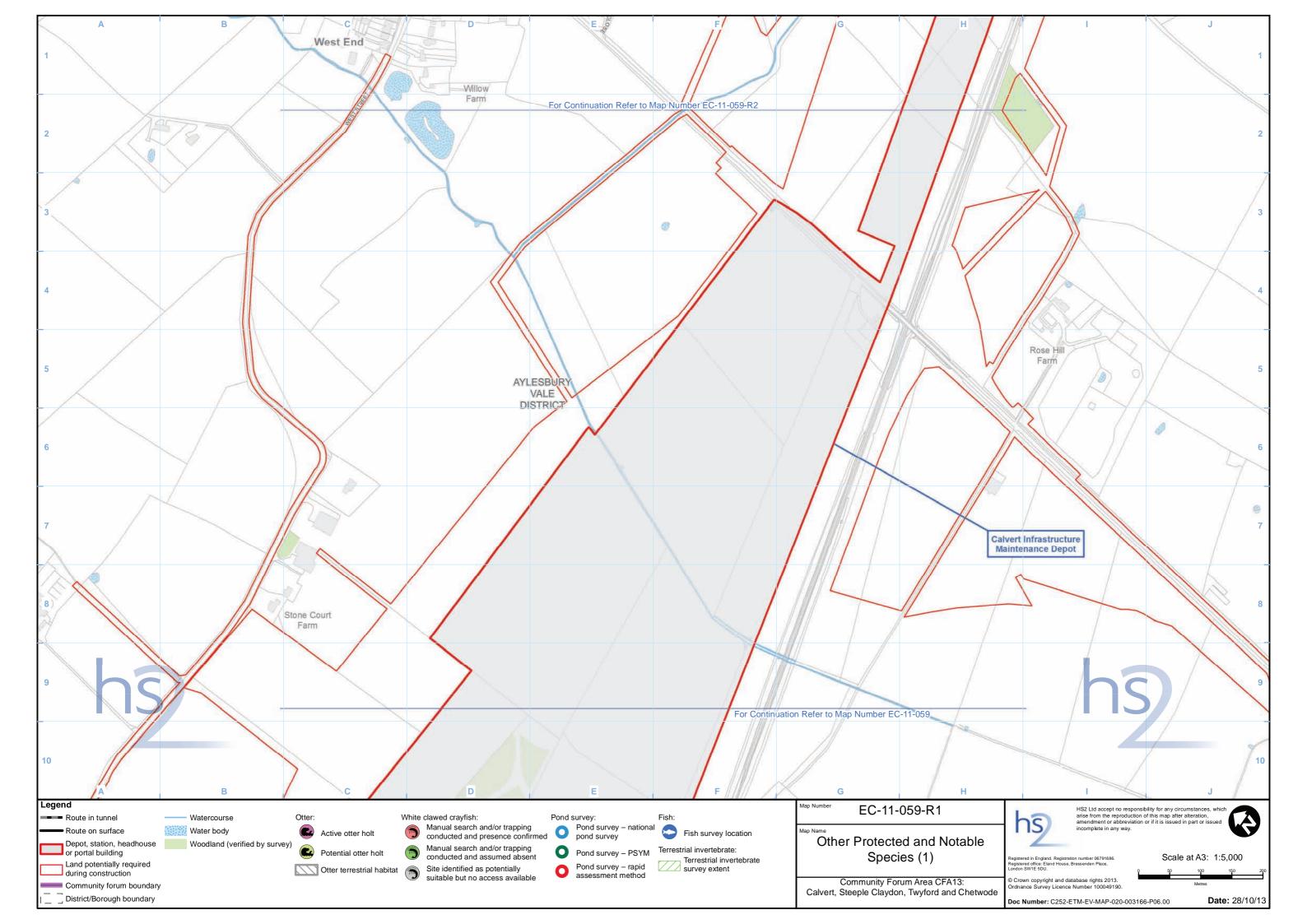
LONDON-WEST MIDLANDS ENVIRONMENTAL STATEMENT

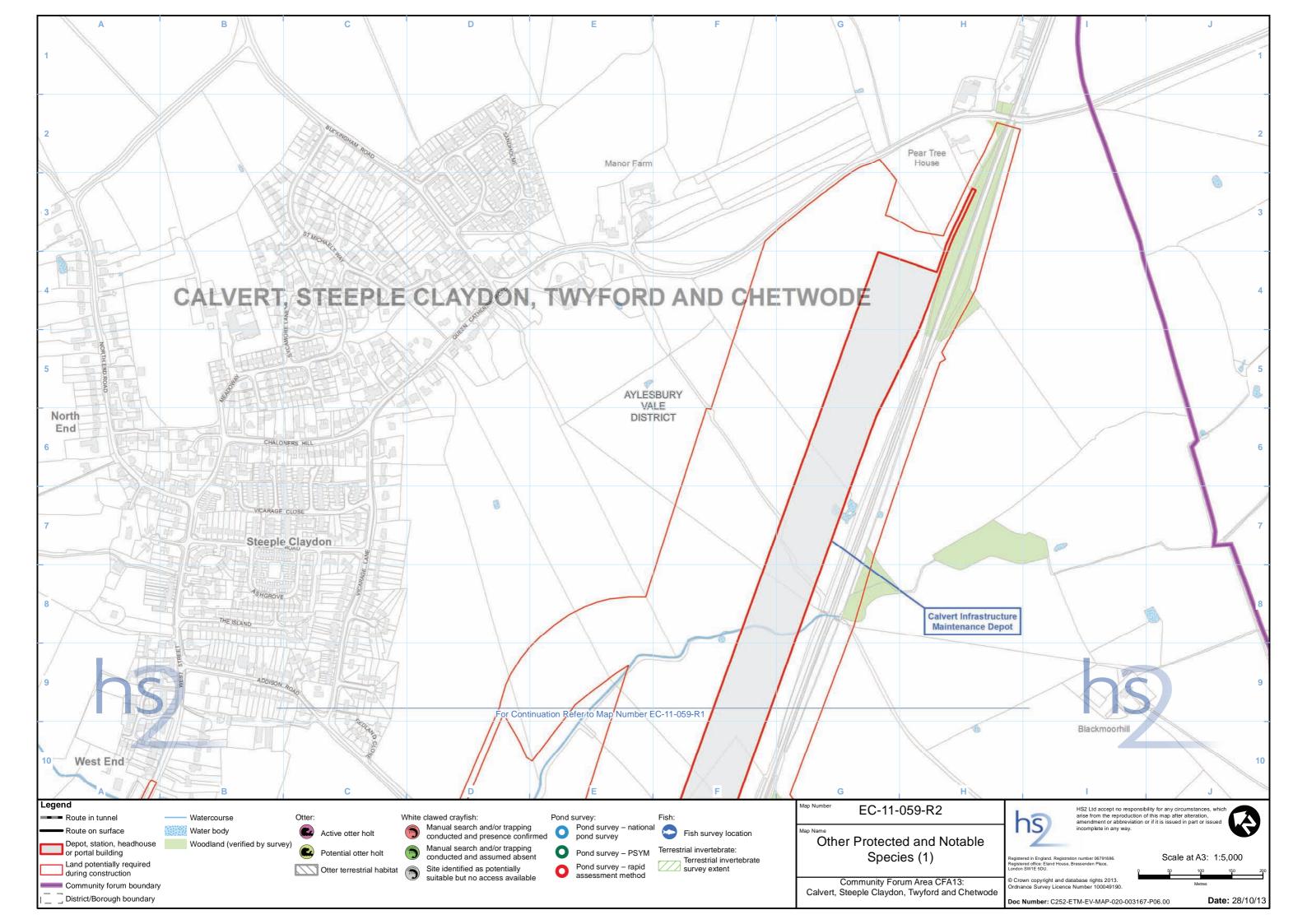
EC-11 – Other Protected and Notable Species (1)

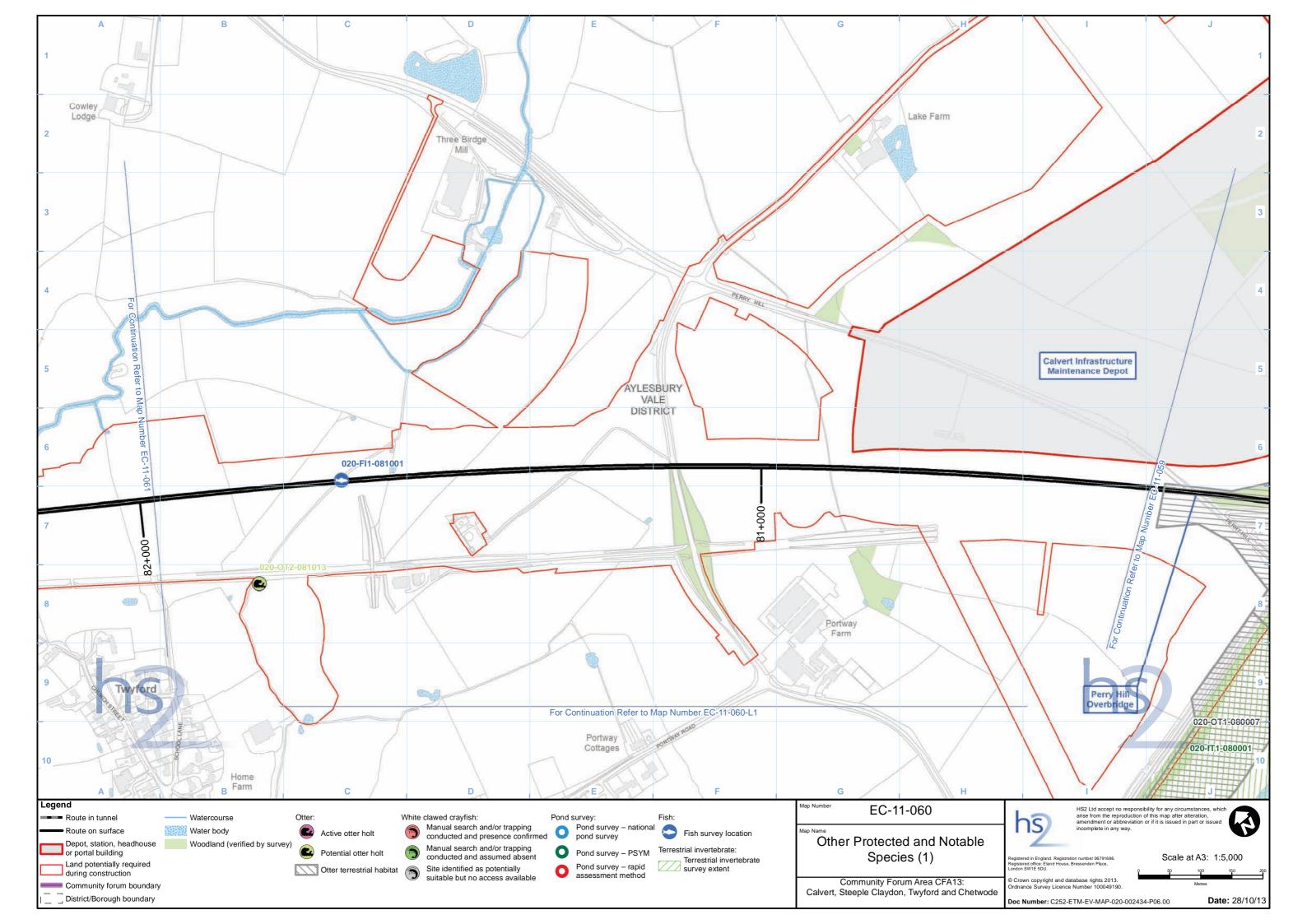


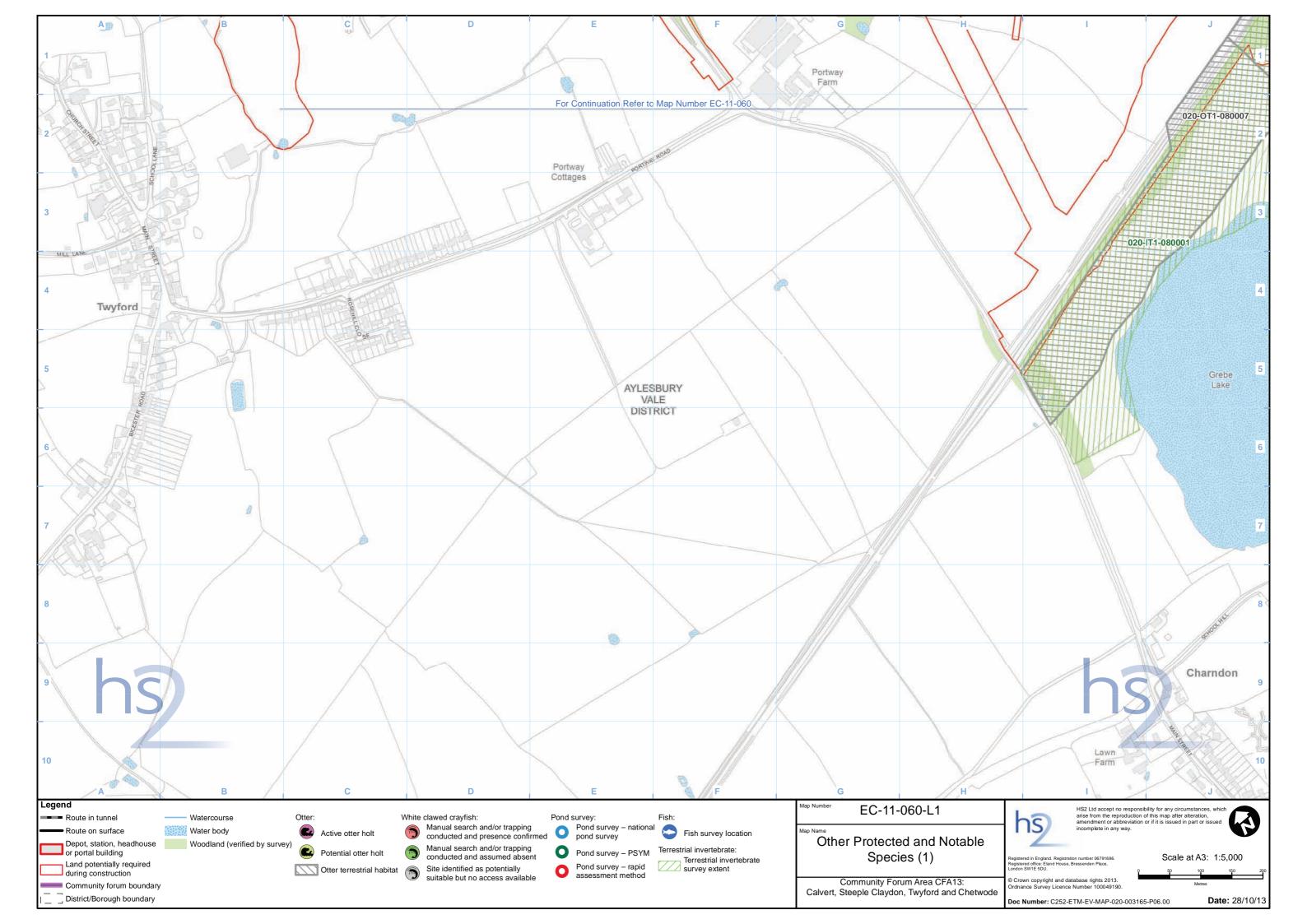


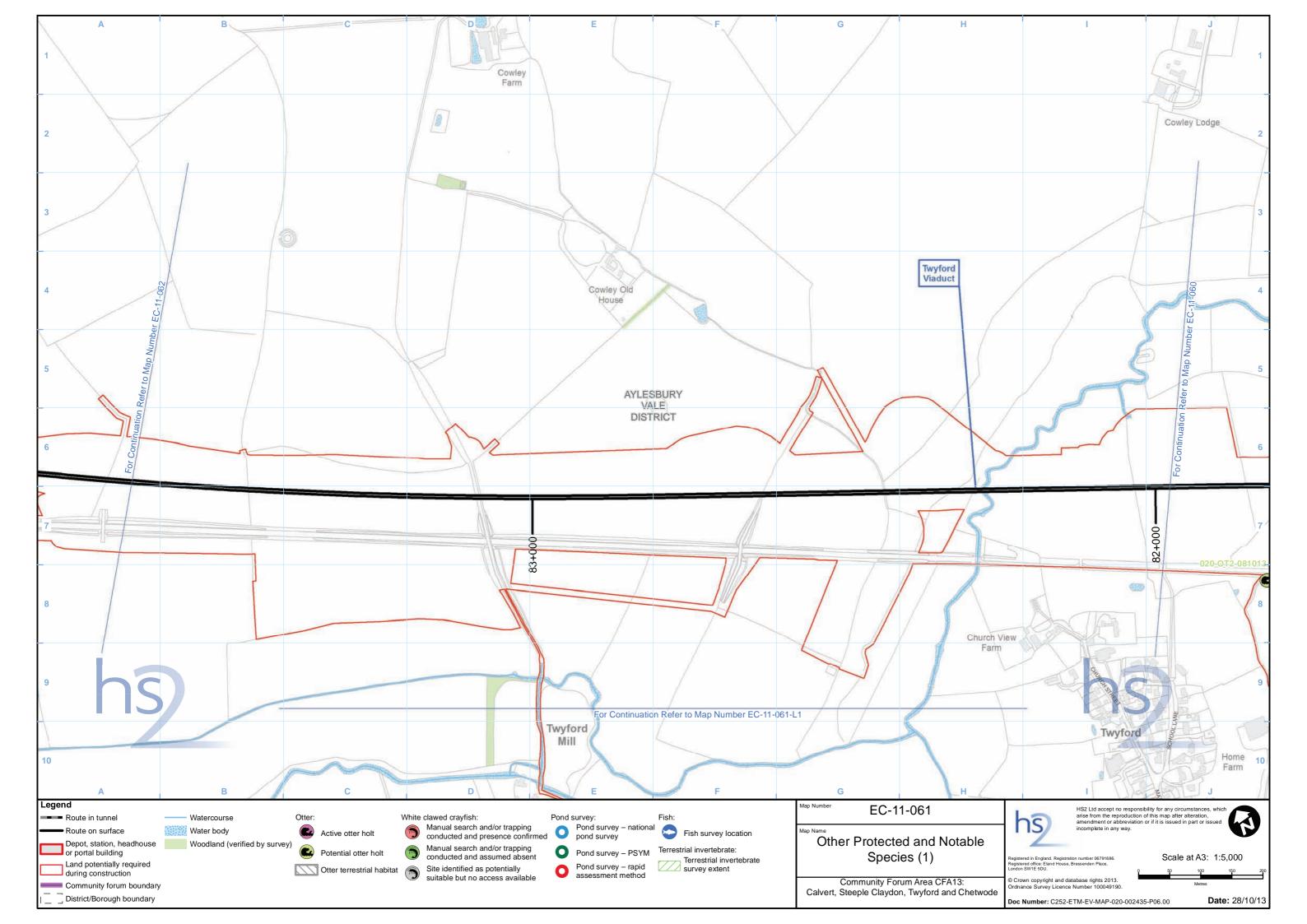


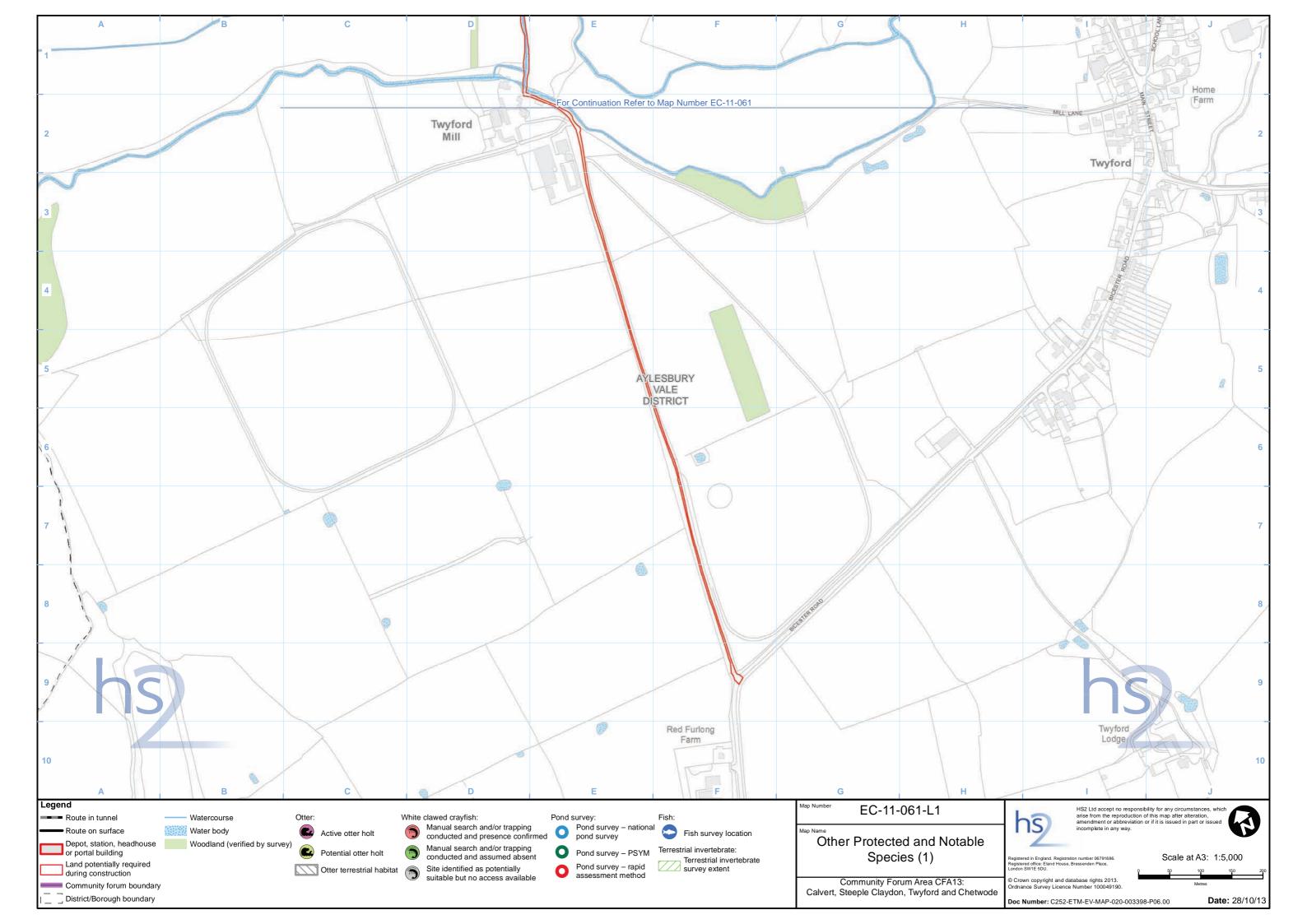


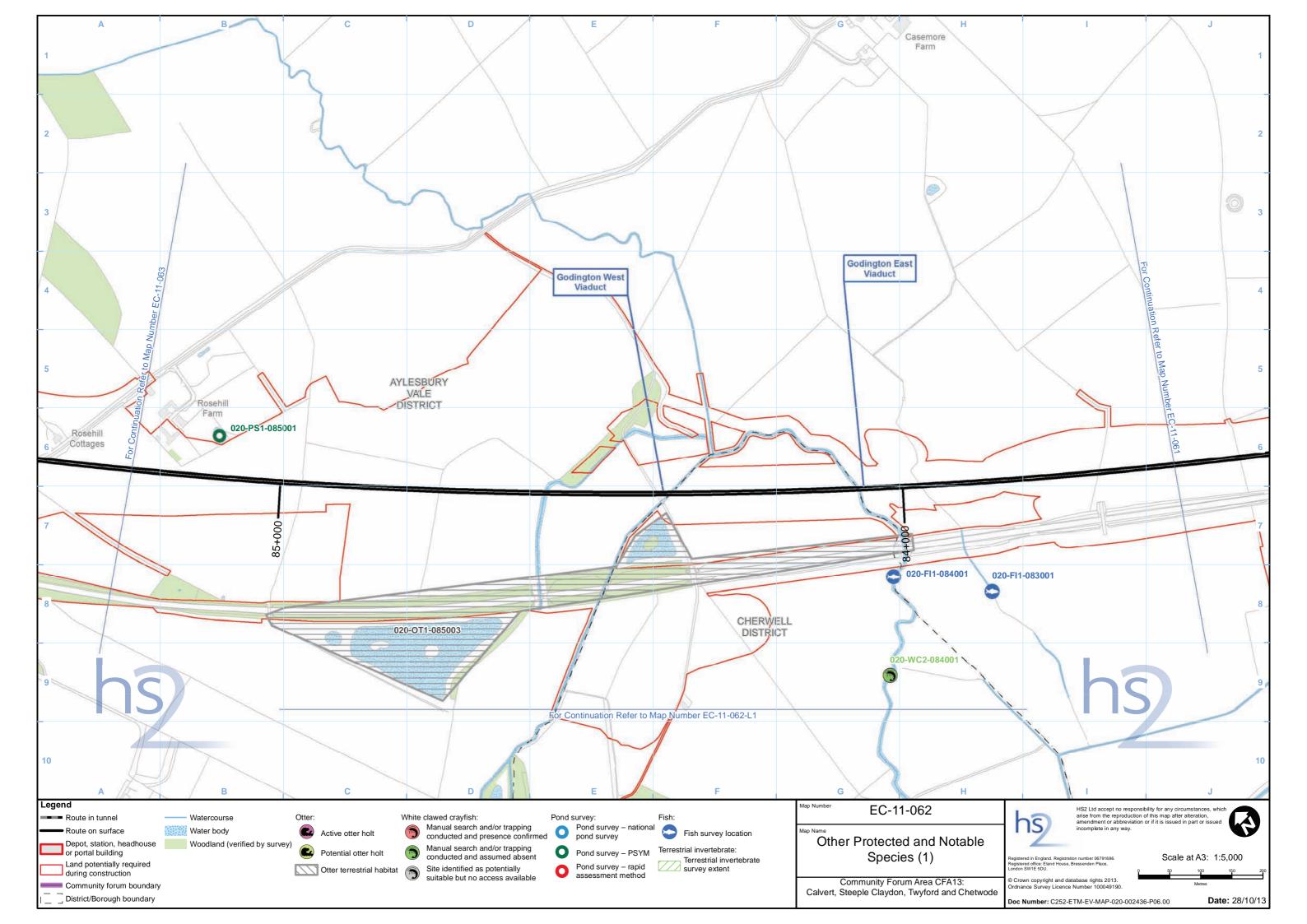


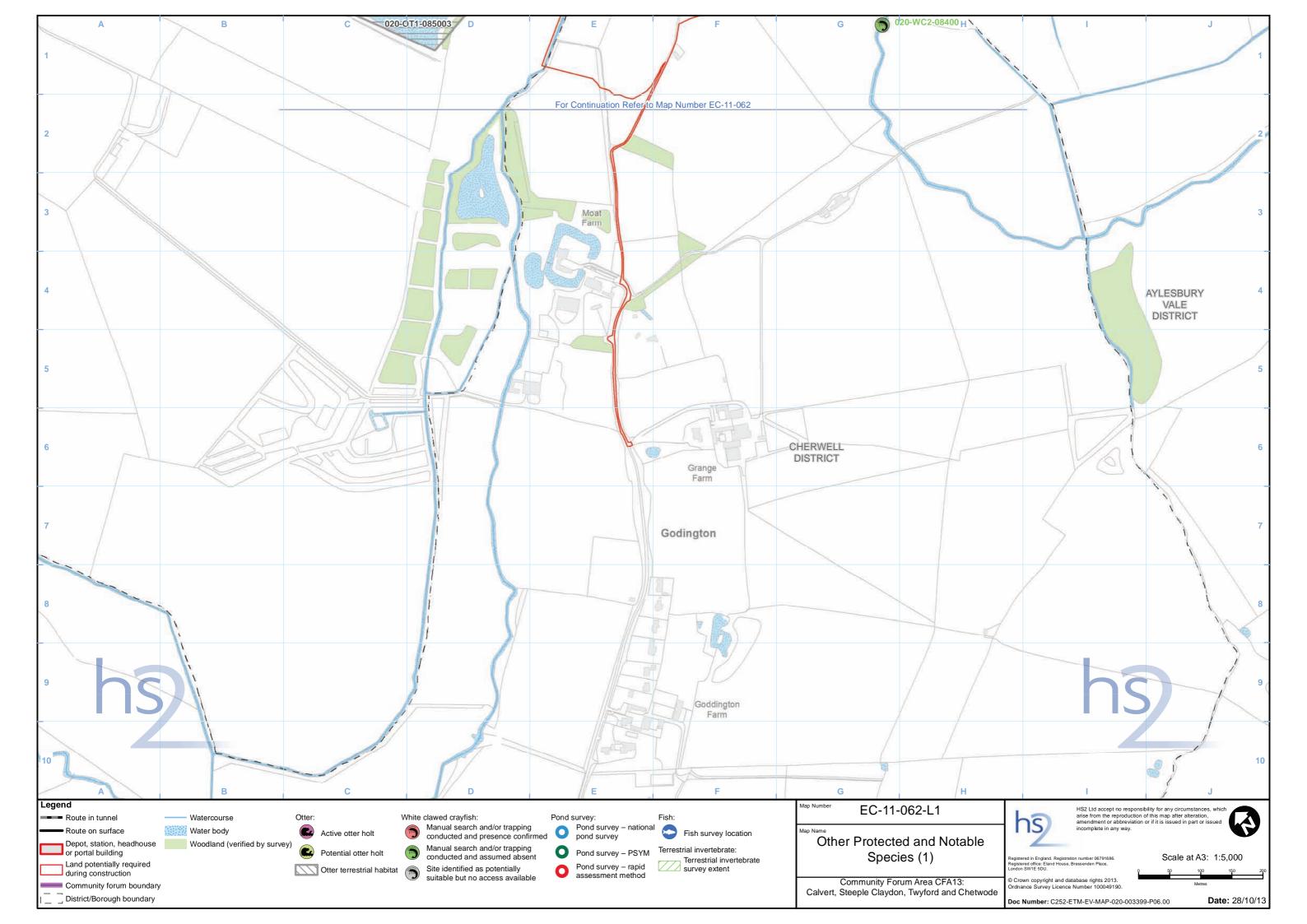


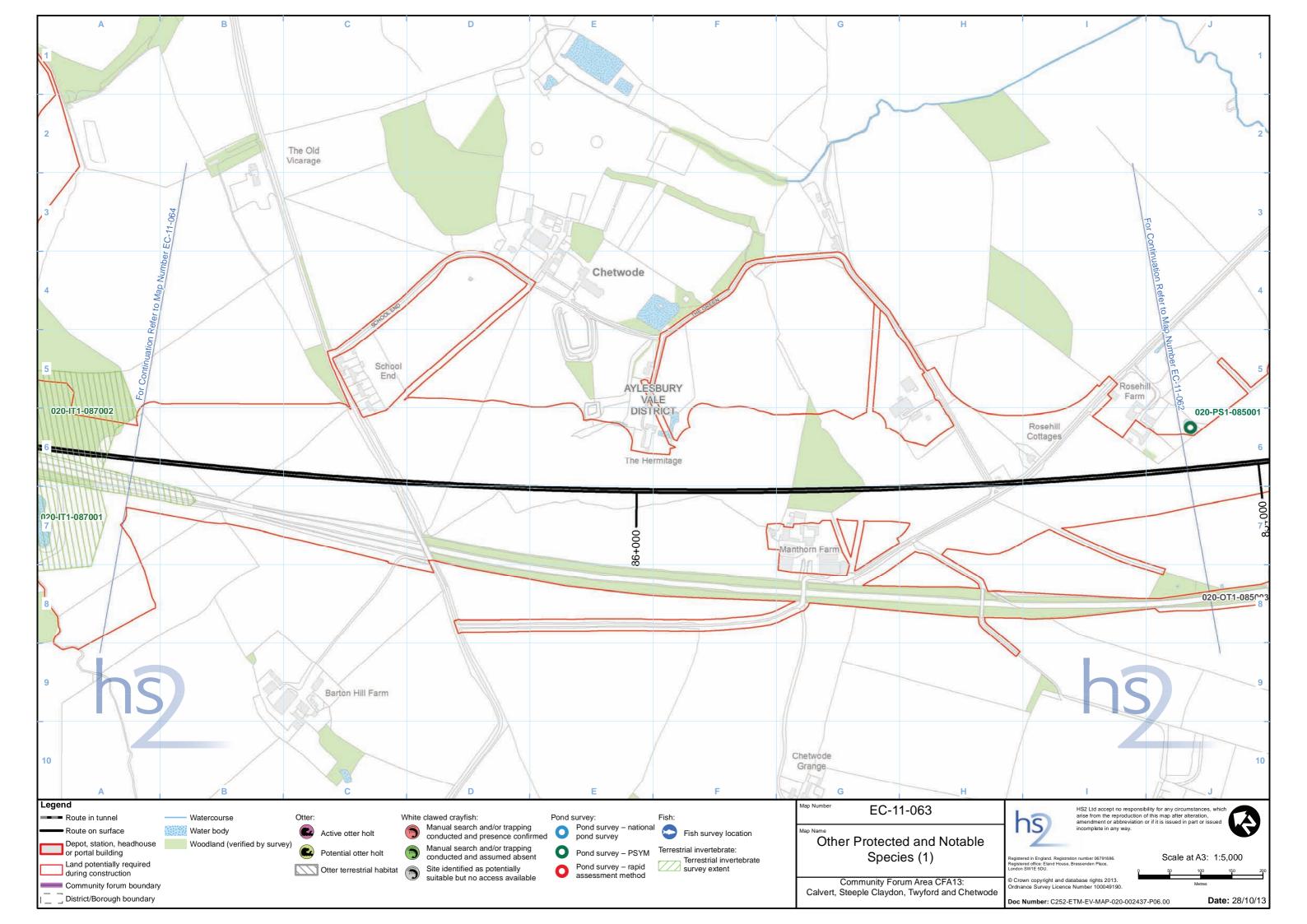


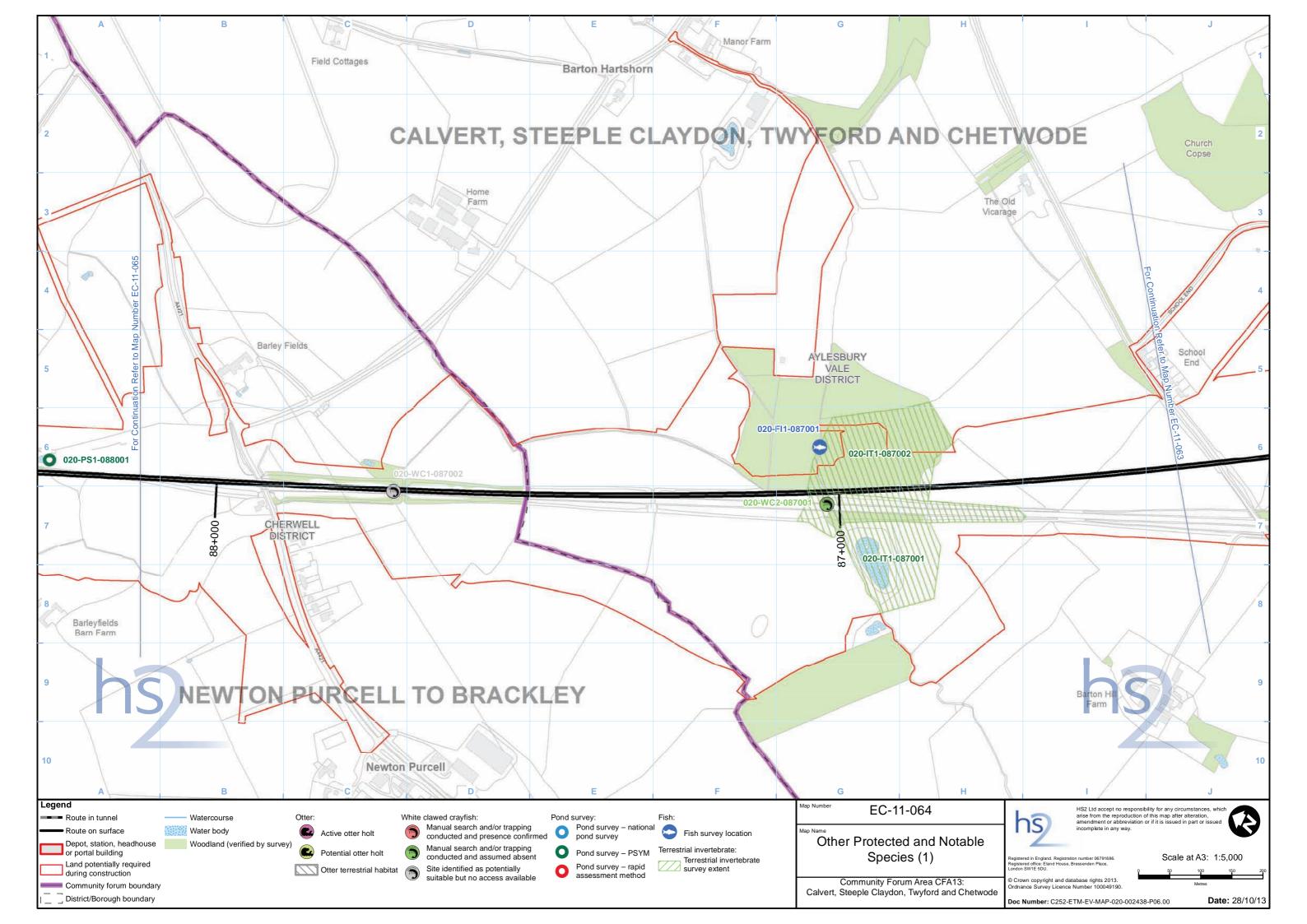














LONDON-WEST MIDLANDS ENVIRONMENTAL STATEMENT

EC-12 – Other Protected and Notable Species (2)

